

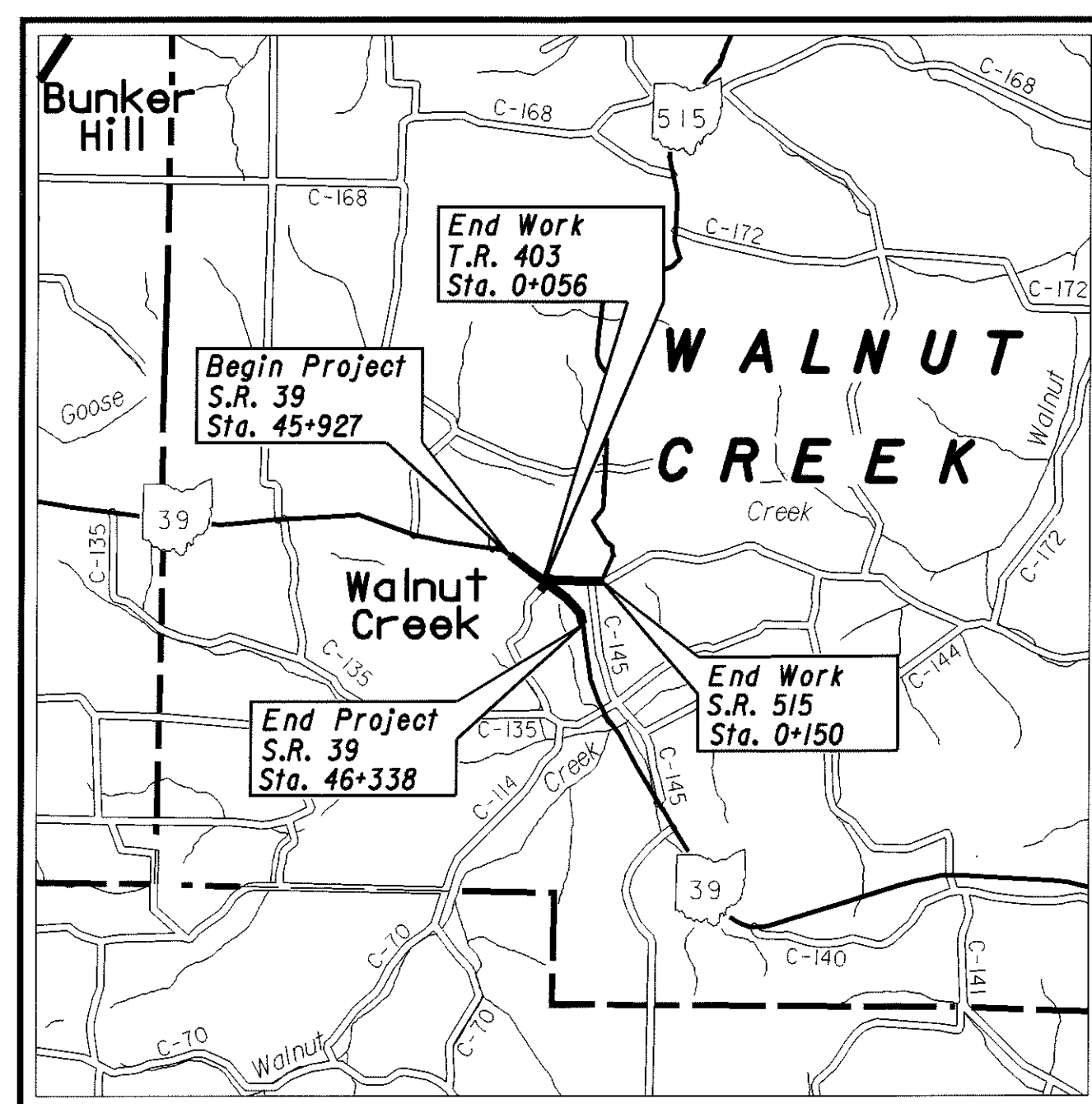


STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

HOL-39-46.140
WALNUT CREEK TOWNSHIP
HOLMES COUNTY

PROJECT DESCRIPTION

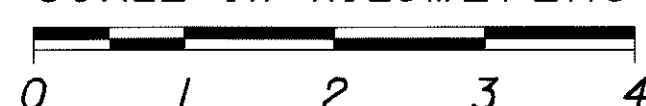
INSTALLATION OF TRAFFIC CONTROL SIGNALS AT THE INTERSECTION OF S.R. 39 AND S.R. 515, INCLUDING SIGNING, PAVEMENT MARKING AND WIDENING OF PAVEMENT TO ADD LEFT TURN STORAGE LANES.



LOCATION MAP

LATITUDE: 81°43'40" LONGITUDE: 40°32'30"

SCALE IN KILOMETERS



INTERSTATE & DIVIDED HIGHWAY _____
UNDIVIDED STATE & FEDERAL ROUTES _____
OTHER ROADS _____

DESIGN DESIGNATION	S.R. 39	S.R. 515
CURRENT ADT (2001)	7800	3000
DESIGN YEAR ADT (2021)	11500	4400
DESIGN HOURLY VOLUME (2021)	1150	484
DIRECTIONAL DISTRIBUTION	55%	55%
TRUCKS (24 HOUR B&C)	5%	6%
DESIGN SPEED	55mph (90km/hr)	25mph (40km/hr)
LEGAL SPEED	55mph (90km/hr)	25mph (40km/hr)
DESIGN FUNCTIONAL CLASSIFICATION	Rural Arterial	Rural Collector

INDEX OF SHEETS

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DESIGN EXCEPTIONS	APPROVAL DATE	SHEET NO.
SHOULDER WIDTH (S.R. 39)	FEBRUARY 1, 2001	3
SUPERELEVATION (S.R. 515)		4, 66-67

1997 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT THE PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

HOL - SR 39-46.140
010276 PID - 16744
Dist 11 6/6/01

FEDERAL PROJECT NO.
TE21-G010(227)

PID NO.
16744

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT
NONE

HOL-39-46.140

1
80

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

ENGINEERS SEAL:

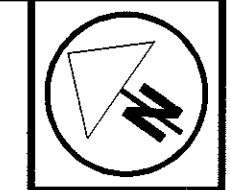
SIGNED: Christopher J. Vargolla
DATE: March 4, 2001

PLAN PREPARED BY:
O.D.O.T. DISTRICT II
PRODUCTION
NEW PHILADELPHIA, OHIO

STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS	
BP-3.1	7-28-00	HL-30.11M	3-31-95	MT-97.10M	4-25-94	806	9-9-97
BP-4.1	7-28-00			MT-97.11M	1-30-95		
BP-5.1	7-28-00	TC-21.20	1-19-01	MT-101.20M	3-1-96	830	10-21-98
		TC-22.10	1-19-01	MT-105.10M	4-25-94		
		TC-65.12M	11-1-95	MT-105.11M	4-25-94	870	8-10-99
GR-1.1M	10-21-97	TC-81.10	5-1-00	MT-120.00	3-1-00	877	4-13-99
GR-1.2M	1-3-96	TC-82.10	1-19-01				
GR-1.3M	11-30-94			DM-1.1M	10-21-97	905	4-1-98
GR-2.1M	4-14-98			DM-1.2M	10-21-97	906	5-5-98
GR-5.3M	11-30-94	TC-83.10	5-1-00	DM-4.3	4-29-99	907	10-21-98
RM-1.1	4-29-99	TC-83.20	5-1-00	DM-4.4	4-29-99	908	3-28-00
RM-2.1M	7-12-95					1003	8-14-95
		CB-1.1M	7-12-95			1046	7-2-96
HW-2.1M	7-12-95	CB-2.2M	7-12-95			1048	9-9-97
HW-2.2M	7-12-95	CB-3.2M	7-12-95			1049	2-3-98

APPROVED:
DATE 02/27/01 DISTRICT DEPUTY DIRECTOR

APPROVED:
DATE 3-26-01 DIRECTOR, DEPARTMENT OF TRANSPORTATION



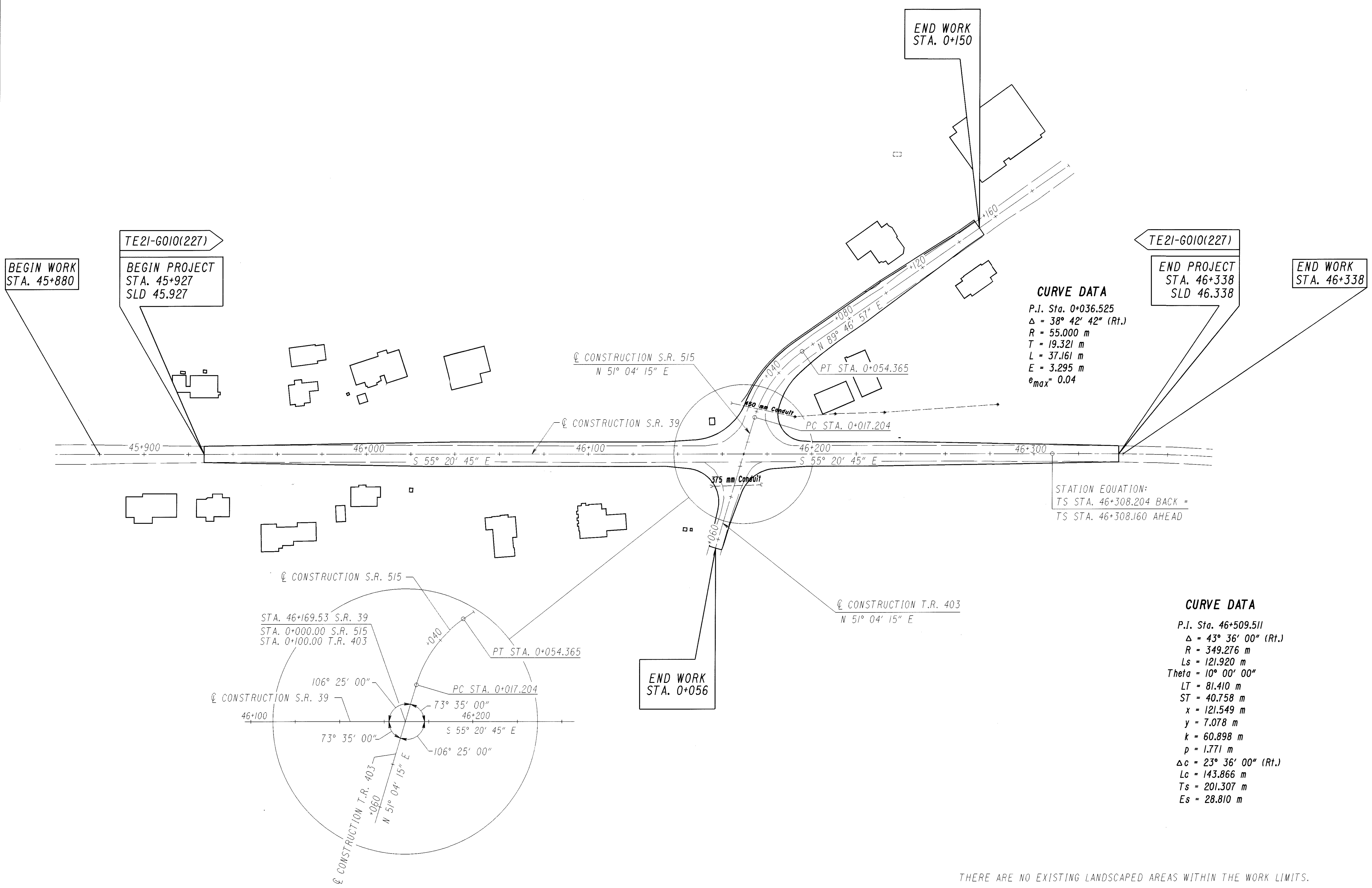
HORIZONTAL SCALE IN METERS

CALCULATED JM
CHECKED CJV

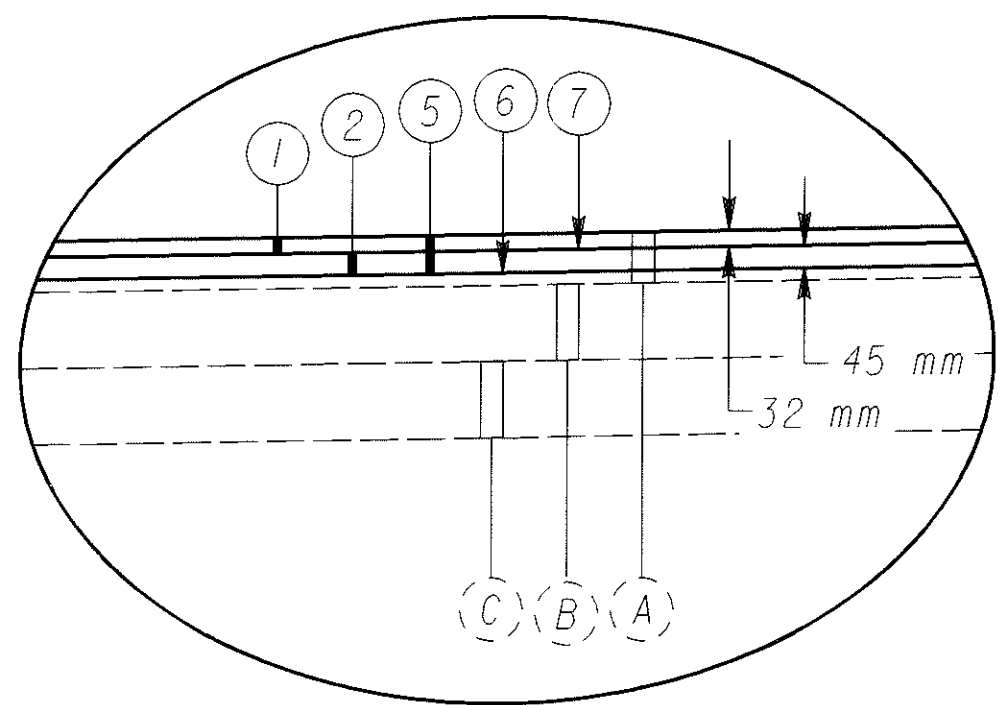
SCHEMATIC PLAN

HOL-39-46.140

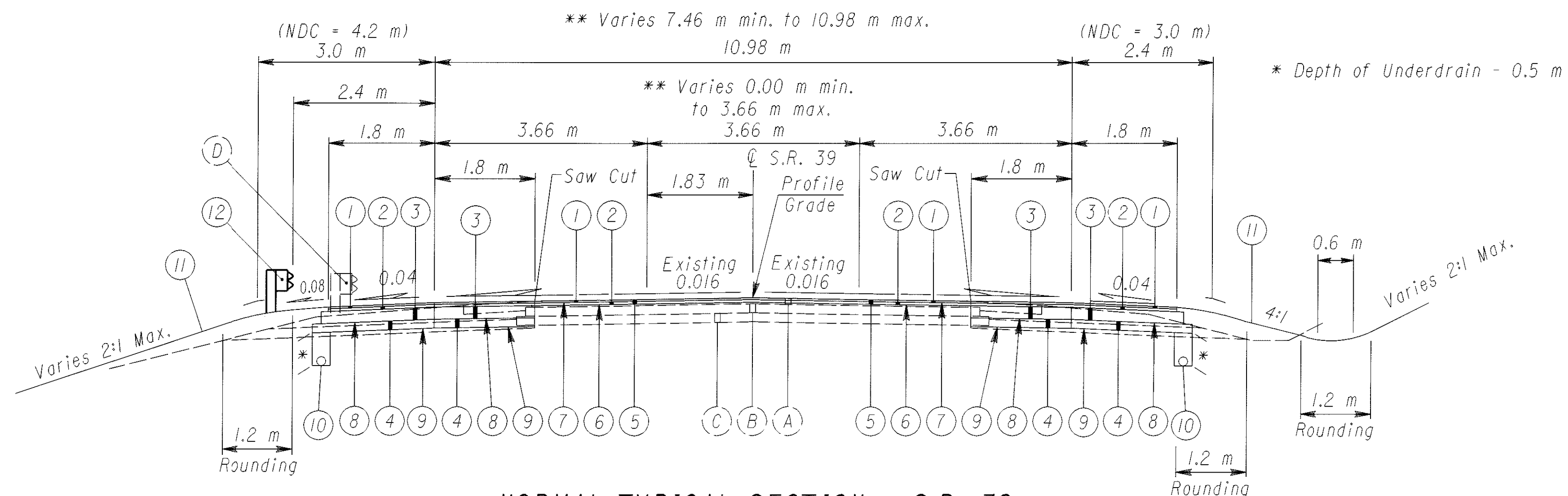
2/80



THERE ARE NO EXISTING LANDSCAPED AREAS WITHIN THE WORK LIMITS.



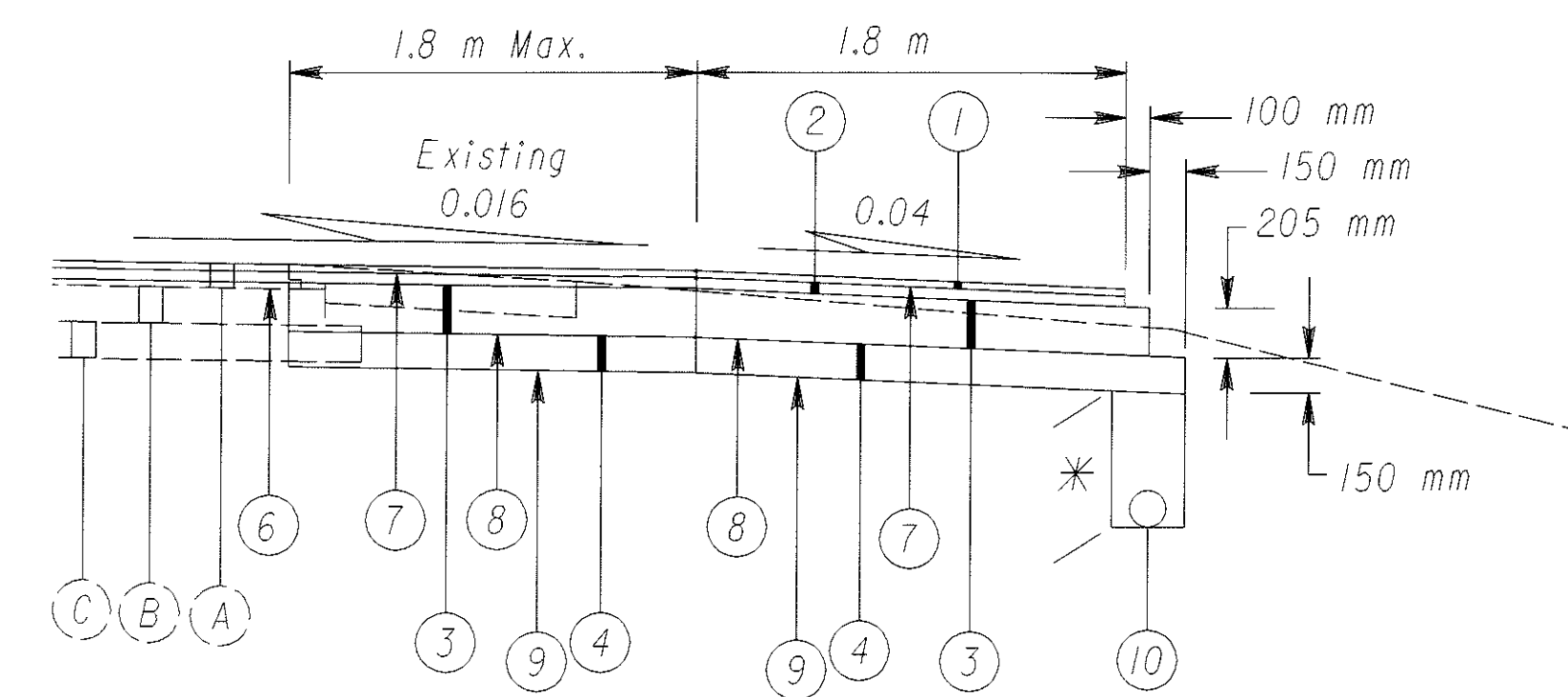
S.R. 39 RESURFACING DETAIL



NORMAL TYPICAL SECTION - S.R. 39

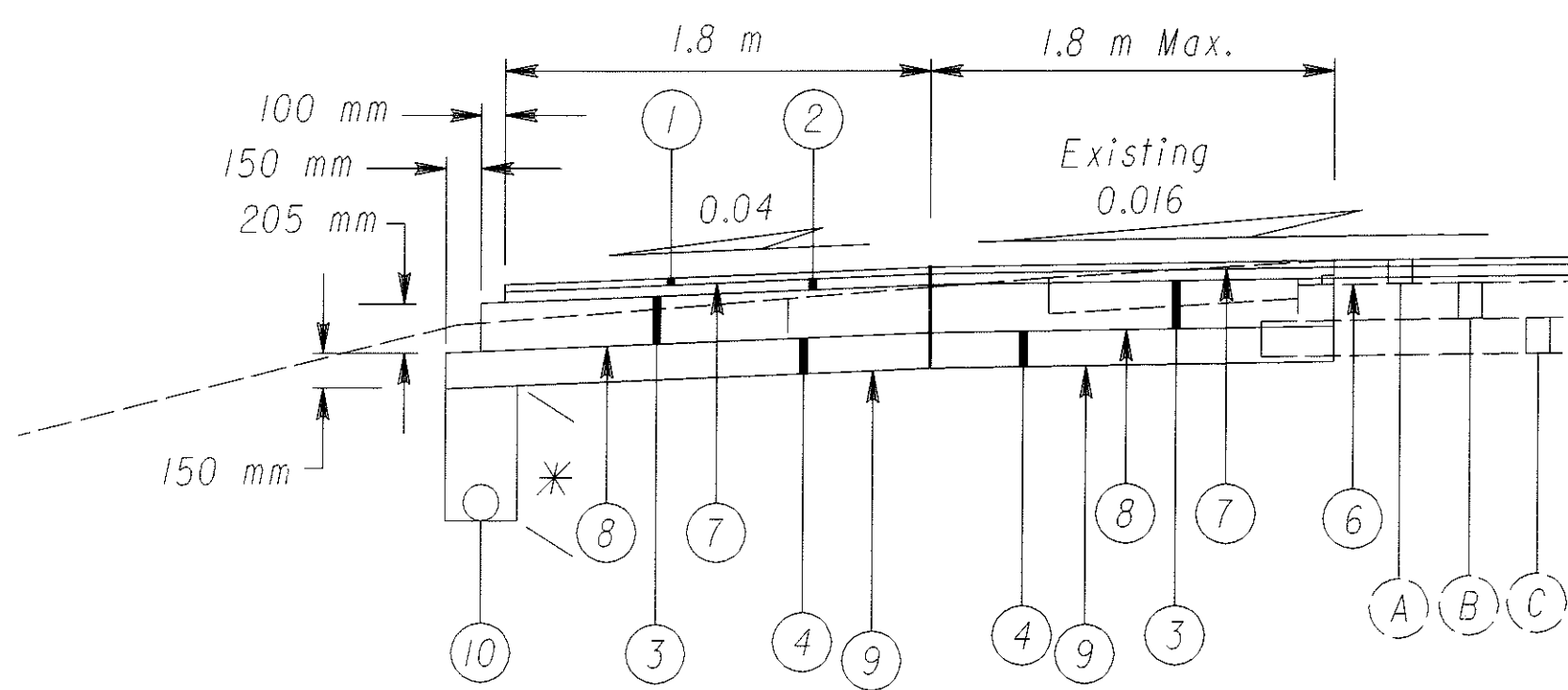
Section Applies:

** Sta. 45+927.00 to Sta. 46+041.86 and
 ** Sta. 46+223.81 to Sta. 46+308.20 Back - S.R. 39 = 199.25 m
 Sta. 46+041.86 to Sta. 46+223.81 - S.R. 39 = 181.95 m
 TOTAL = 381.20 m

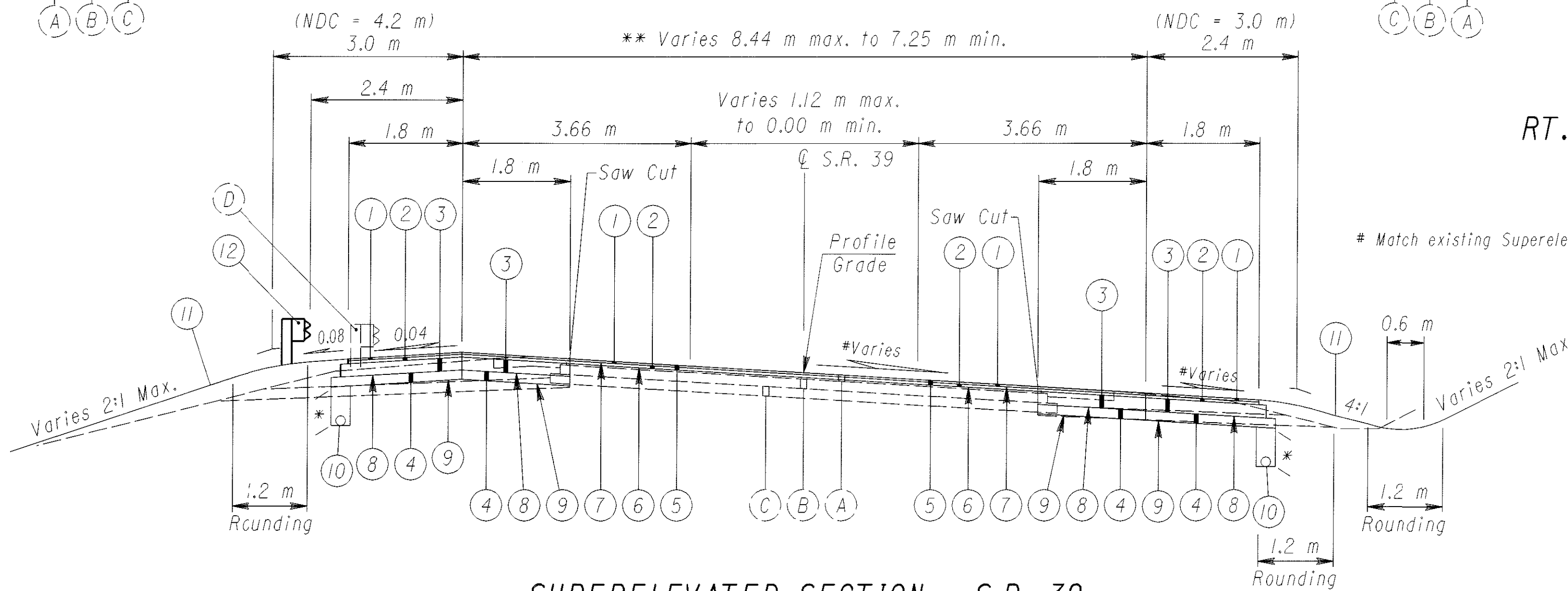


RT. SHOULDER DETAIL - S.R. 39

Match existing Superelevation.



LT. SHOULDER DETAIL - S.R. 39



SUPERELEVATED SECTION - S.R. 39

Section Applies:

** Sta. 46+308.16 Ahead to Sta. 46+338.00 - S.R. 39 = 29.84 m

PROPOSED LEGEND

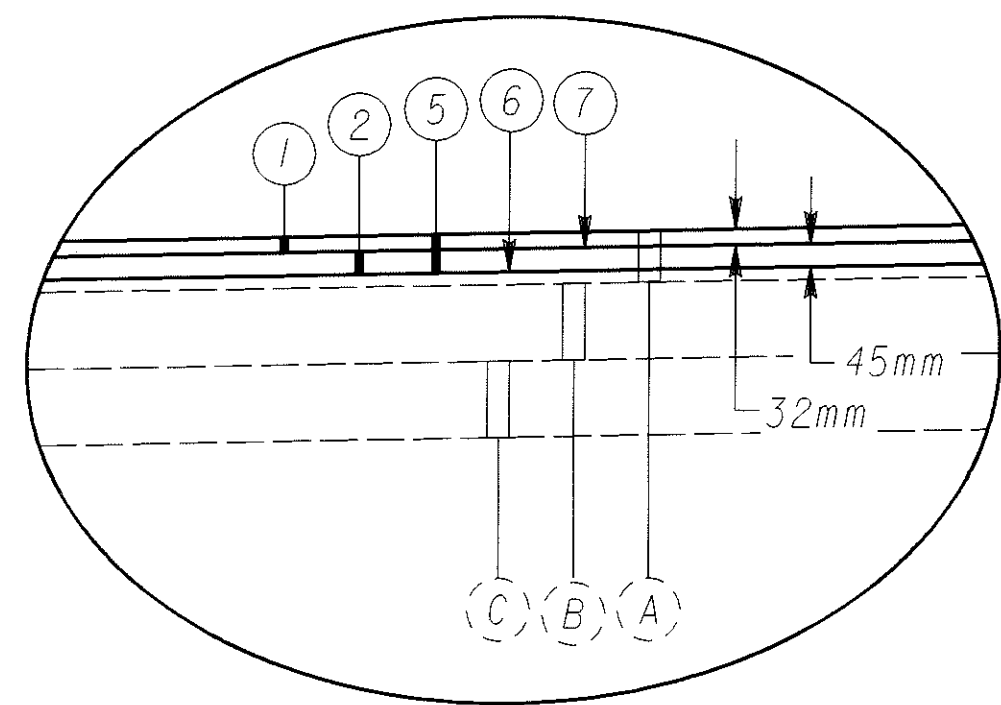
- ① — Item 448 - 32 mm Asphalt Concrete Surface Course, Type 1, PG64-22, As Per Plan
- ② — Item 448 - 45 mm Asphalt Concrete Intermediate Course, Type 2, PG64-22
- ③ — Item 301 - 205 mm Bituminous Aggregate Base, PG64-22
- ④ — Item 304 - 150 mm Aggregate Base
- ⑤ — Item 254 - Pavement Planing Bituminous (77 mm Nominal Depth)
- ⑥ — Item 407 - Tack Coat
- ⑦ — Item 407 - Tack Coat for Intermediate Course
- ⑧ — Item 408 - Bituminous Prime Coat (1.8 L/sq.m.)
- ⑨ — Item 203 - Subgrade Compaction
- ⑩ — Item 605 - 100 mm Shallow Pipe Underdrain

PROPOSED LEGEND

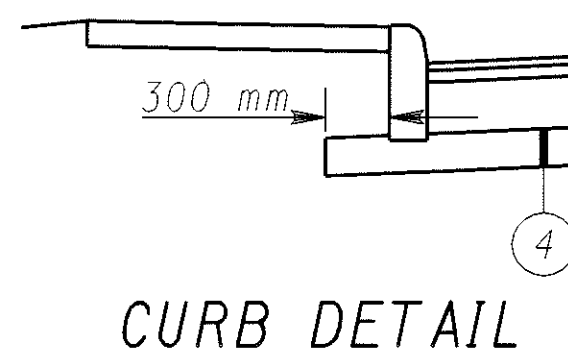
- ⑪ — Item 870 - Seeding and Mulching
- ⑫ — Item 606 - Guardrail, Type 5
- ⑬ — Item 608 - Concrete Walk
- ⑭ — Item 830 - Concrete Curb, Type 6

EXISTING LEGEND

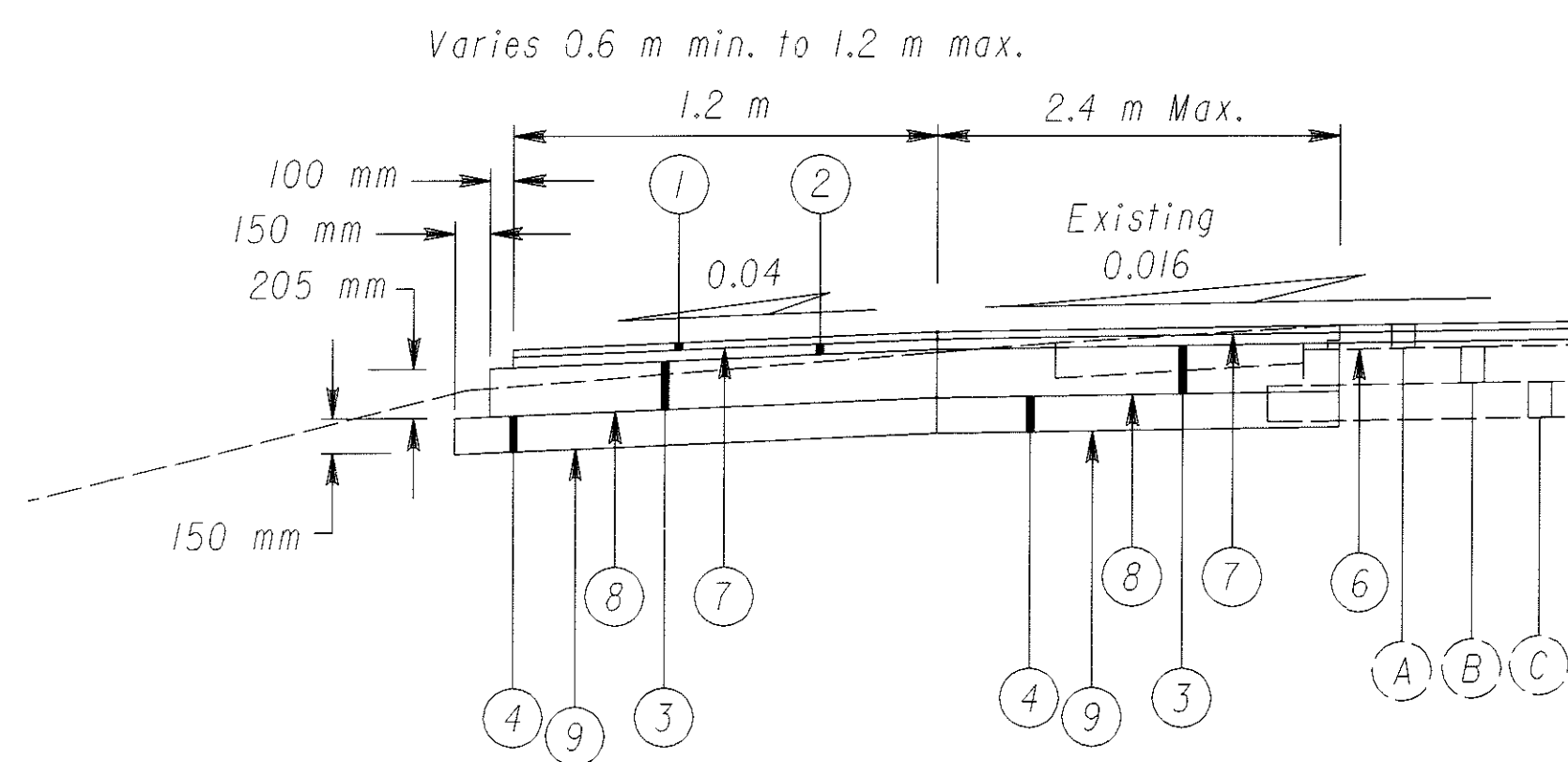
- Ⓐ — 100mm Asphalt Concrete
- Ⓑ — 152mm Aggregate Base
- Ⓒ — 152mm Subbase
- Ⓓ — Existing Guardrail, Type 5



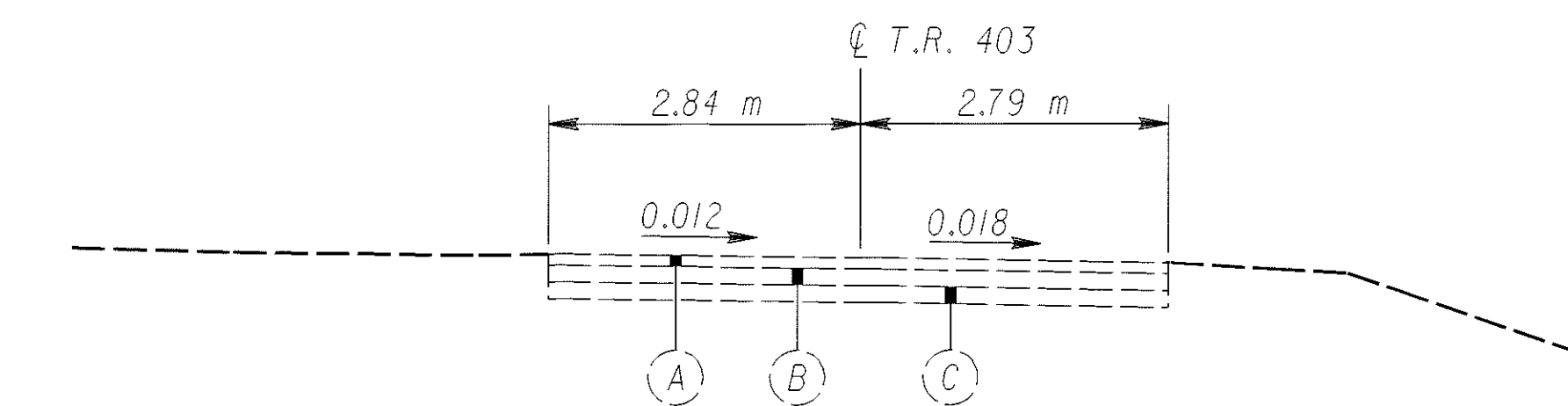
S.R. 515 AND T.R. 403
RESURFACING DETAIL



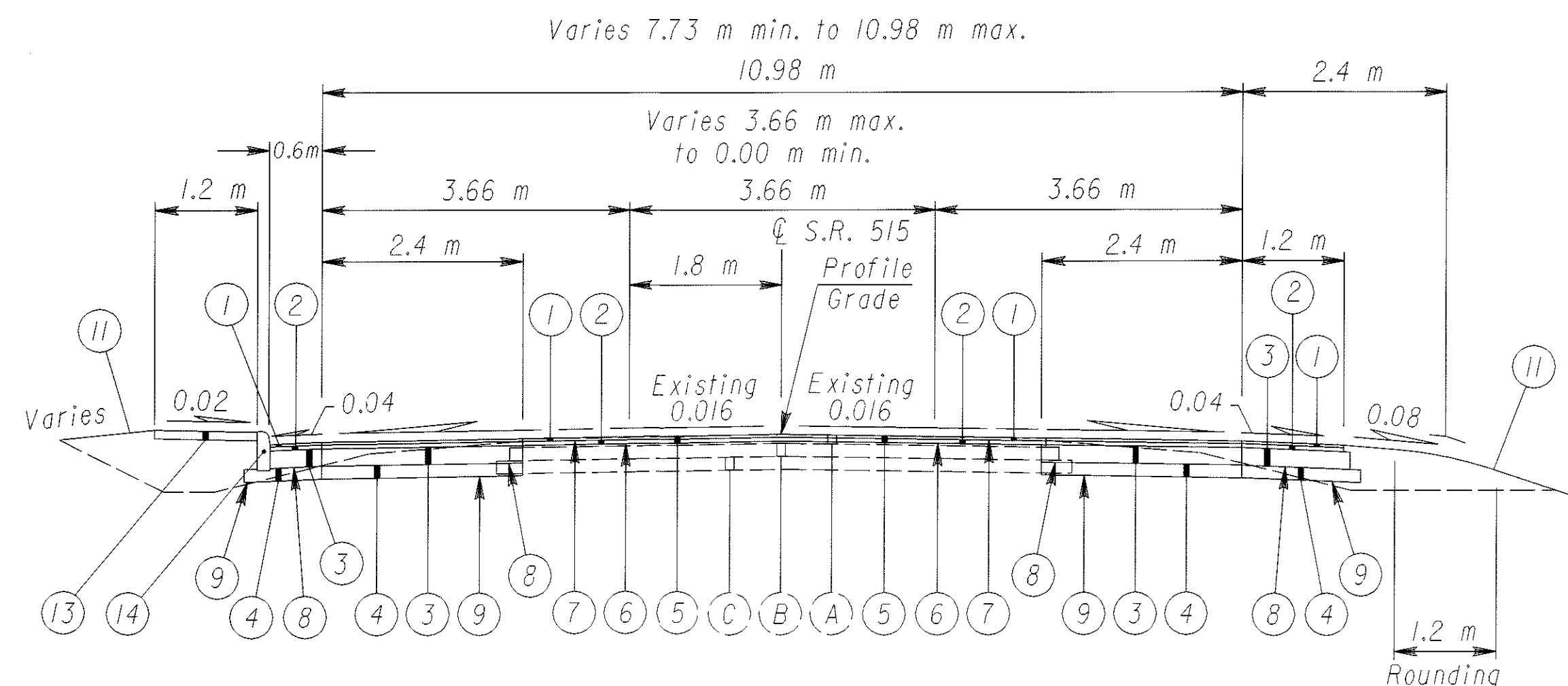
CURB DETAIL



SHOULDER DETAIL
S.R. 515 AND T.R. 403



TYPICAL SECTION - ADJOINING PAVEMENT (T.R. 403, STA. 0+056)

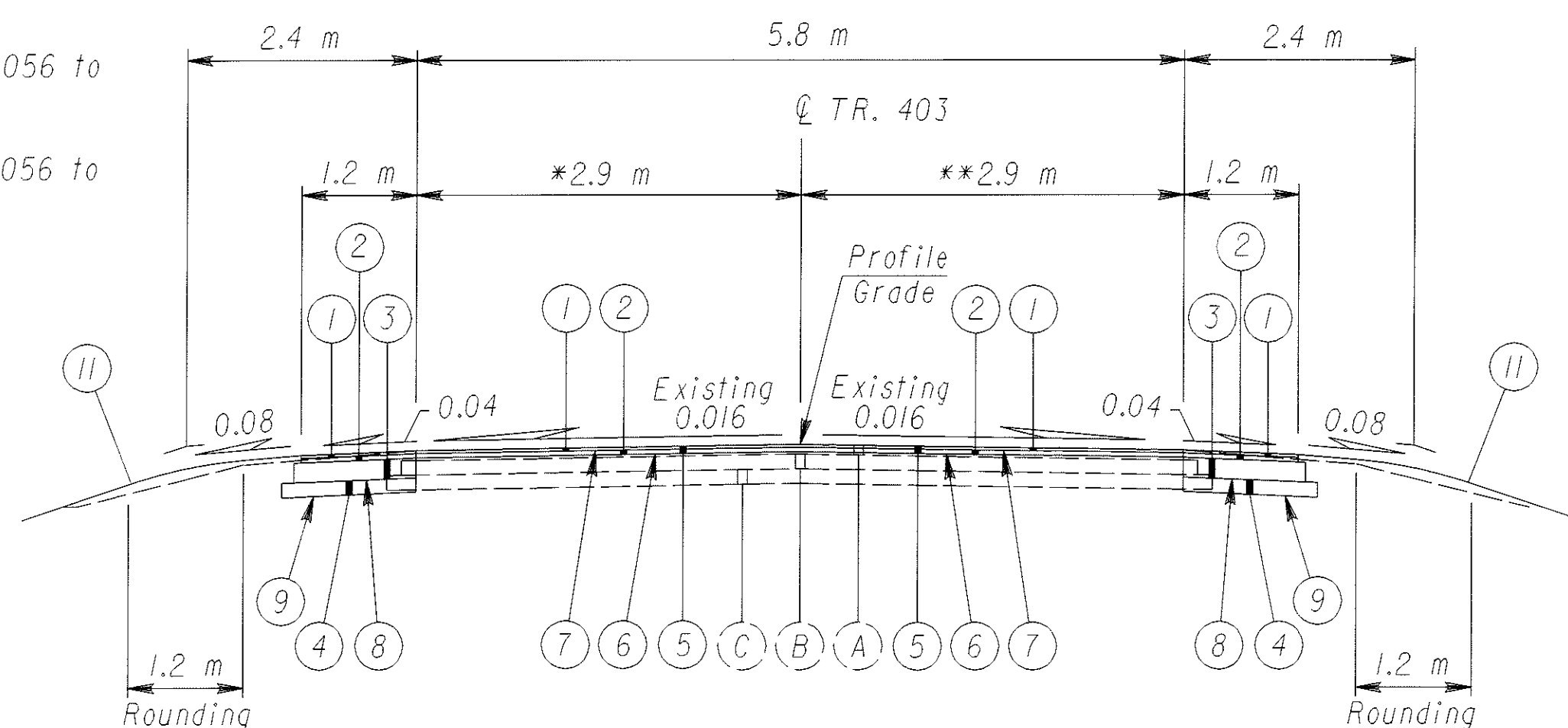


NORMAL TYPICAL SECTION - S.R. 515

Section Applies:
 = 4.28 m
 Sta. 0+070.87 to Sta. 0+150.00 - S.R. 515 = 79.13 m
 TOTAL = 83.41 m

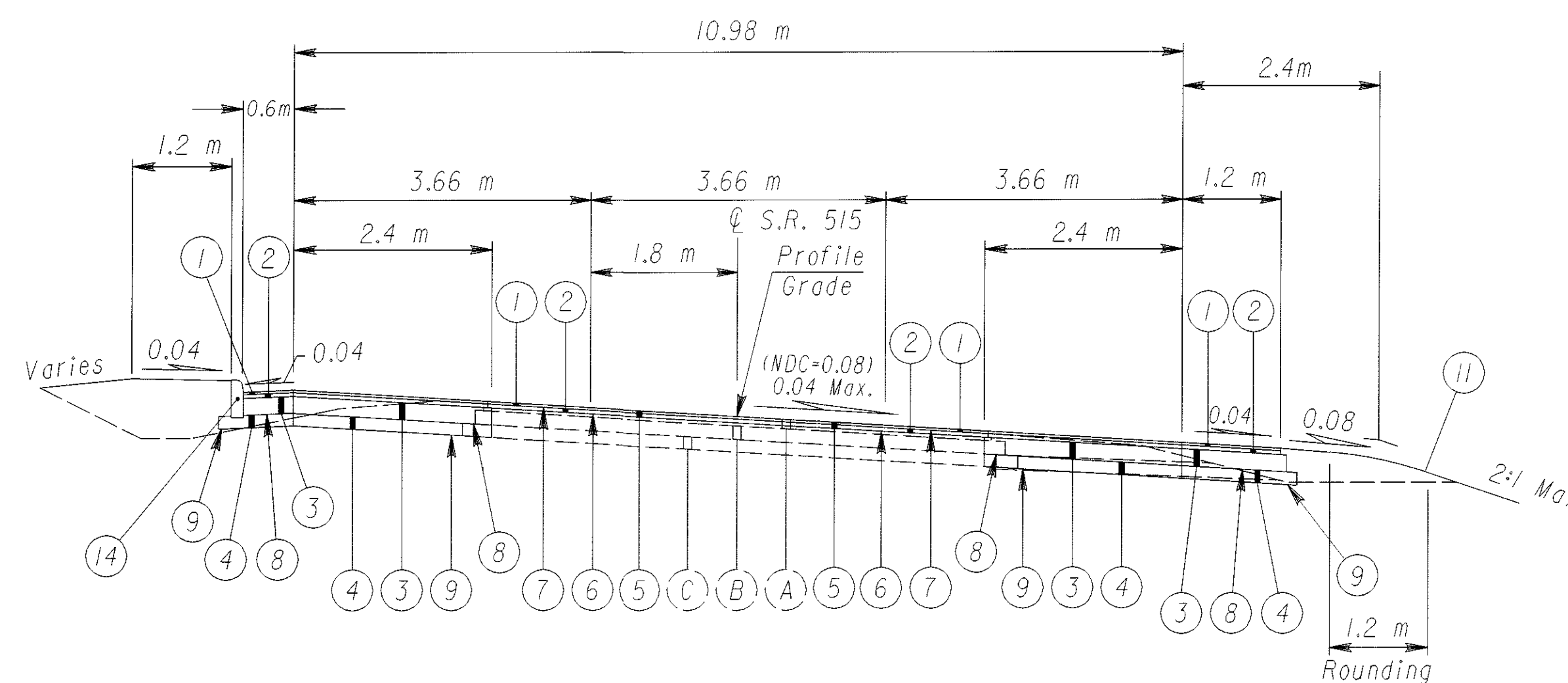
For cross-slope transition along
S.R. 515, see sheet nos. 66-67

* Varies from 2.84m at Sta. 0+056 to
2.9m at Sta. 0+058.768
 ** Varies from 2.79m at Sta. 0+056 to
2.9m at Sta. 0+078.994



NORMAL TYPICAL SECTION - T.R. 403

Section Applies:
 Sta. 0+056.00 to Sta. 0+094.28 - T.R. 403 = 38.28 m



SUPERELEVATED SECTION - S.R. 515

Section Applies:
 Sta. 0+010.00 to Sta. 0+070.87 - S.R. 515 = 60.87 m

NOTE: Saw cut at the existing edge of pavement along S.R. 515 and T.R. 403.

For Legend See Sheet No. 3

ROUNDING

The rounding at slope breakpoints shown on the Typical Sections apply to all Cross-Sections even though otherwise shown.

UNDERGROUND UTILITIES

The locations of underground utilities shown on the plans are as obtained from the owners of the utility as required by Section 153.64 of the Ohio Revised Code.

UTILITY OWNERSHIP

The following utilities and owners are located within the work limits of the project:

AEP Ohio Power Company Adelphia
P.O. Box 24630 P.O. Box 506
Canton, Ohio 44701-4630 New Philadelphia, Ohio 44663
Phone 330-438-7823 Phone 330-364-6634

Mr. Jim Deitrick Verizon
Columbia Gas of Ohio, Inc. 1121 Tuscarawas Avenue
2429 Linden Avenue New Philadelphia, Ohio 44663
Zanesville, Ohio 43701-1438 Phone 330-364-0588
Phone 740-452-5467

Walnut Creek Water Company
P.O. Box 28
Walnut Creek, Ohio 44687
Phone 330-893-2510

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

616. WATER 25 CU. METER

616. CALCIUM CHLORIDE 1 METRIC TON

CONTINGENCY QUANTITIES

The Contractor shall not order materials or perform work listed in the General Summary for Items designed by plan note to be used "As Directed By The Engineer" unless authorized by the Engineer. The actual work locations and quantities used at the Engineer's discretion shall be made a matter of record by incorporation into the final change order governing completion of this project.

PROFILE AND ALIGNMENT

The proposed pavement resurfacing shall follow the alignment and profile of the existing pavement for S.R. 39. The Proposed Asphalt Concrete Overlay shall be as shown on the Typical Sections.

SAME SEASON COMPLETION OF SURFACE COURSE

Any length of resurfacing work started in a construction season shall have the surface course placed that same season.

ELEVATION DATUM

All elevations, unless denoted "assumed elevation", are based on U.S.G.S. datum (NGVD 1927).

WORK LIMITS

The work limits shown on these plans are for physical construction only. The installation and operation of all temporary traffic control and temporary traffic control devices required by these plans shall be provided by the Contractor whether inside or outside these work limits.

CONSTRUCTION NOISE

Activities and land use adjacent to this project may be affected by construction noise. In order to minimize any adverse construction noise impacts, any power-operated construction-type device shall not be operated between the hours of 9:00 p.m. and 6:00a.m. In addition, any such device shall not be operated at any time in such a manner that the noise created substantially exceeds the noise customarily and necessarily attendant to the reasonable and efficient performance of such equipment.

REMOVAL OF TREES OR STUMPS

All trees and stumps specifically marked for removal within the construction limits shall be removed under the lump sum bid for Item 201, Clearing and Grubbing. The following is an approximate estimate of the number of trees and stumps to be removed.

SIZES	NO. TREES	NO. STUMPS	TOTAL
0.5m	1	0	1

ITEM 202, RAISED PAVEMENT MARKER REMOVED FOR STORAGE, AS PER PLAN

Existing raised pavement markers shall be removed per Section 202.071, except that the requirement to fill the depressions shall be waived. The following quantity has been carried to the General Summary to remove existing raised pavement markers:

Item 202, Raised Pavement Marker Removed for Storage ----- 24 Each

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

When it is necessary to splice proposed guardrail to existing guardrail, only the existing guardrail shall be cut, drilled, or punched. The connection shall be made using a "W-Beam Rail Splice" shown in AASHTO M 180. Payment shall be included in the contract price for the respective guardrail items.

PART-WIDTH CONSTRUCTION

Because of the necessity to build this project under traffic, and construct the full pavement width in stages, extreme care shall be taken to prevent the construction of a butt joint in the base courses. Longitudinal joints shall be lapped as shown on Standard Construction Drawing BP-3.J.

RESIDENTIAL AND COMMERCIAL DRAINAGE CONNECTIONS

Existing roof drains, footer drains, or yard drains, disturbed by the work, shall be provided with unobstructed outlets by connecting a conduit through the curb or into a drainage structure. The location, type, size, and grade of the new conduit required to replace or extend the existing drain will be determined by the Engineer.

Existing roof drains, footer drains, or yard drains which are encountered above the elevation of the roadway ditches, shall be outleted into the roadway ditch. The optimum outlet elevation shall be 300 mm above the flowline elevation of the ditch.

The following conduit types may be used: 707.33, 707.41 non-perforated, 707.42, 707.43, 707.45, 707.46, 707.47, 707.51, or 707.52 PS46 Min.

The following estimated quantities have been included in the General Summary for use as directed by the Engineer for the work noted above:

Item 603, 150 mm Conduit, Type F, For Drainage Connection - - 36 Meter
Item 603, 300 mm Conduit, Type F, For Drainage Connection - - 10 Meter

ITEM 604 - CATCH BASINS

Precast catch basins shall not be permitted for this project. However, the top section of the catch basins shown on Standard Construction Drawing CB-2.2M and CB-3.2M shall be used.

SEEDING AND MULCHING OF LAWNS

In addition to "areas in front of residences" referred to in 870.13, the special preparation shall be extended to encompass all lawns and/or lawn-like areas as determined by the Engineer.

ITEM 254, PATCHING PLANED SURFACE

The following quantity is to be used as directed by the Engineer for the purpose of patching the planed surface per Section 254.05:

Item 254, Patching Planed Surface ----- 422 Sq. Meter

ITEM 407 - TACK COAT AND ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE

The rate of application of the 407 Tack Coat shall be subject to adjustment as directed by the Engineer. For estimating purposes only, the plan quantities indicate an average application rate of:

407, Tack Coat ----- 0.34 Liter Per Sq. Meter
407, Tack Coat for Intermediate Course - - - 0.18 Liter Per Sq. Meter

SEEDING AND MULCHING

The following quantities are provided to promote growth and care of permanent seeded areas:

870, Soil Analysis Test	2	Each
870, Placing Topsoil	272	Cu. Meter
870, Commercial Fertilizer	816	Kilogram
870, Agricultural Lime	2448	Kilogram
870, Water	133	Cu. Meter

Seeding and mulching shall be applied to all areas of exposed soil between the right-of-way lines, and within the construction limits for areas outside the right-of-way lines covered by work agreement or slope easement. Quantity calculations for seeding and mulching are based on these limits.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE PLACED BY THE CONTRACTOR WITH THE ENGINEER'S CONCURRENCE FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

877, TEMPORARY SEEDING AND MULCHING	1088	SQ. METER
877, TEMPORARY PERIMETER FILTER FABRIC FENCE	100	METER
877, TEMPORARY INLET PROTECTION FILTER FABRIC FENCE	81	METER
870, REPAIR SEEDING AND MULCHING	272	SQ. METER

ITEM 448, ASPHALT CONCRETE SURFACE COURSE, TYPE I, PG64-22 (DRIVEWAYS), AS PER PLAN
ITEM 448, ASPHALT CONCRETE SURFACE COURSE, TYPE I, PG64-22, AS PER PLAN

Materials furnished for fine and coarse aggregates used in this item shall exclude all stone and crushed carbonate stone.

REVIEW OF DRAINAGE FACILITIES

Before any work is started on the project, and again before final acceptance by the State, representatives of the State and of the Contractor, along with local representatives, shall make an inspection of all existing sewers which are to remain in service, and which may be affected by the work. The condition of the existing conduits and their appurtenances shall be determined from field observations. Records of the inspection shall be kept in writing by the State.

All new conduits, inlets, catch basins, and manholes constructed as a part of the project shall be free of all foreign matter, and in a clean condition before the project will be accepted by the State.

All existing sewers inspected initially by the above mentioned parties shall be maintained and left in a condition reasonably comparable to that determined by the original inspection. Any change in the condition resulting from the Contractor's operations shall be corrected by the Contractor to the satisfaction of the Engineer.

Payment for all operations described above shall be included in the contract price for the pertinent 603 conduit items.

GENERAL NOTES

HOL -39 -46 .140

5
80

CALCULATED
CJV
CHECKED
CCS

ITEM SPECIAL, MAILBOX SUPPORT

This work shall consist of furnishing and erecting mailbox supports, and any associated mounting hardware in accordance with plan details, and attaching an owner-supplied mailbox at locations specified in the plan, or otherwise established by the Engineer.

Wood posts shall be nominal 100 mm by 100 mm square, or 115 mm diameter round, and conform to Section 710.14.

Steel posts shall be nominal pipe size 60.3 mm O.D., and conform to AASHTO M 181.

Hardware (plates, screws, bolts, etc.) shall be commercial-grade galvanized steel.

Posts shall be set per the first paragraph of Section 606.03, and shall in no instance be encased in concrete.

Support hardware shall accommodate either a single or a double mailbox installation, and no more than two boxes may be mounted on a single post.

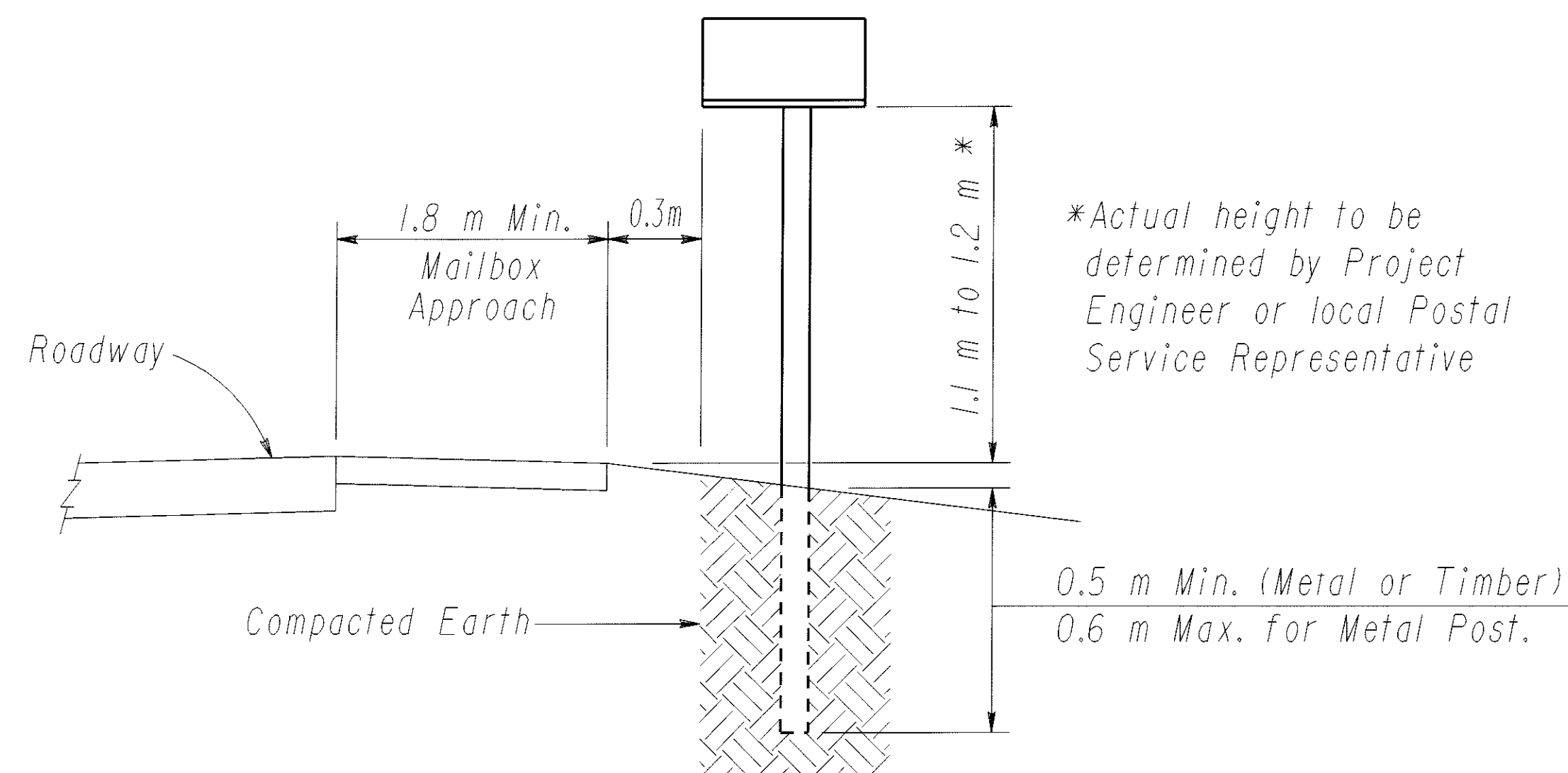
The mailbox shall be securely and neatly attached by the Contractor to the new support. The Contractor shall furnish all necessary attachment hardware (nuts, bolts, plates, spacers, and washers) as necessary to accommodate the complete installation.

In the absence of a new mailbox supplied by the owner, the Contractor shall salvage the existing box, and place it on the new support. Due care shall be exercised in such an operation, and the Contractor shall be responsible for repairing or replacing any box damaged by improper handling on his part, as judged and directed by the Engineer.

The Contractor shall be responsible for coordinating with the local post master regarding the timing of the movement of any mailbox to a new location. The local post office is located at 4878 Olde Pump Street, Walnut Creek, Ohio 44687, telephone (330) 893-2415. The Contractor shall also be responsible for notifying the property owner three (3) days in advance of the new installation.

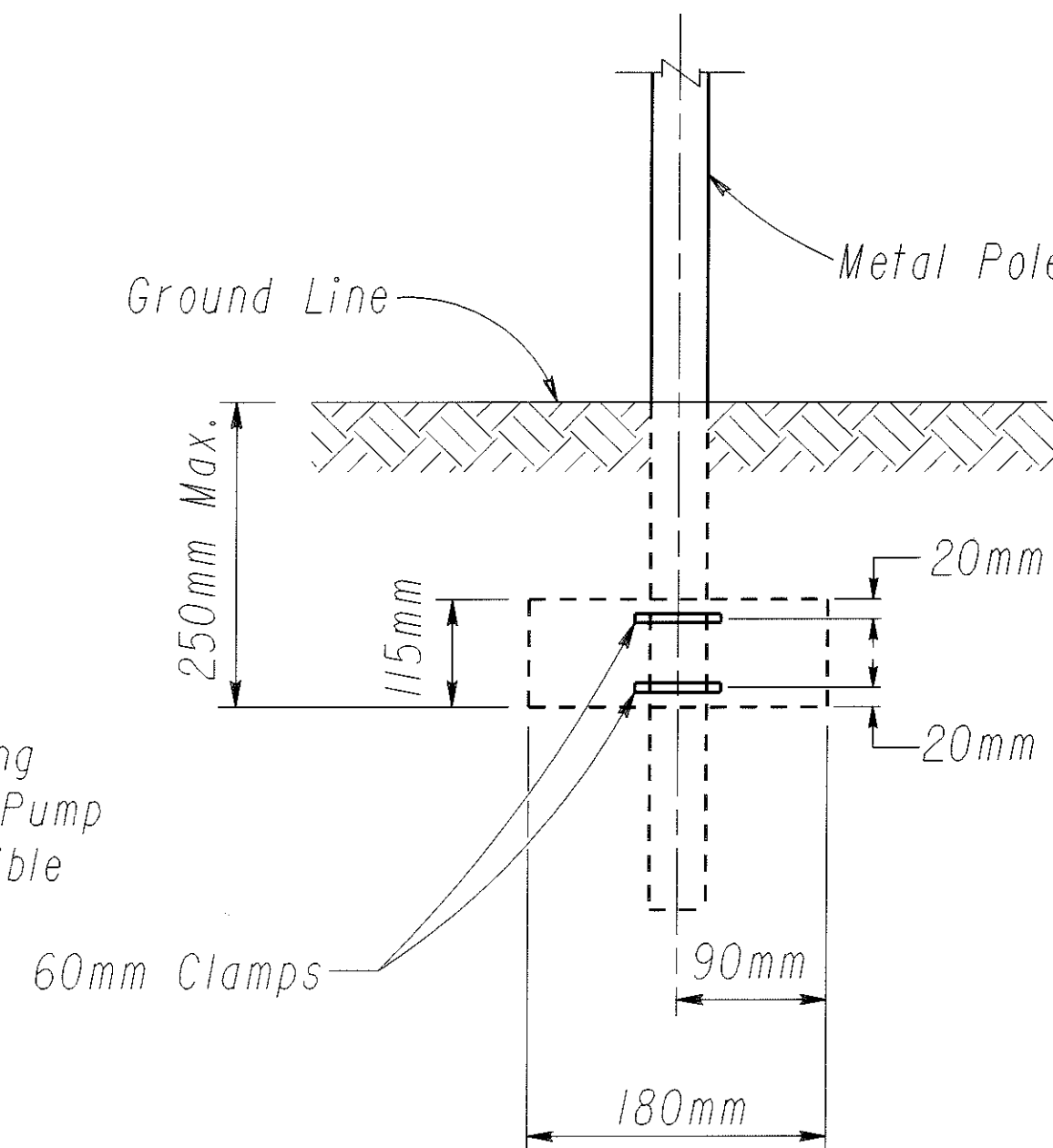
Payment under this item shall be limited to final permanent installations. Temporary installations shall be in accordance with Section 107.12. However, the same material and size limitations as for permanent installations shall apply.

Mailbox supports, complete in place, will be paid for at the contract unit price per Each, for Item Special, Mailbox Support (Single)(Double).

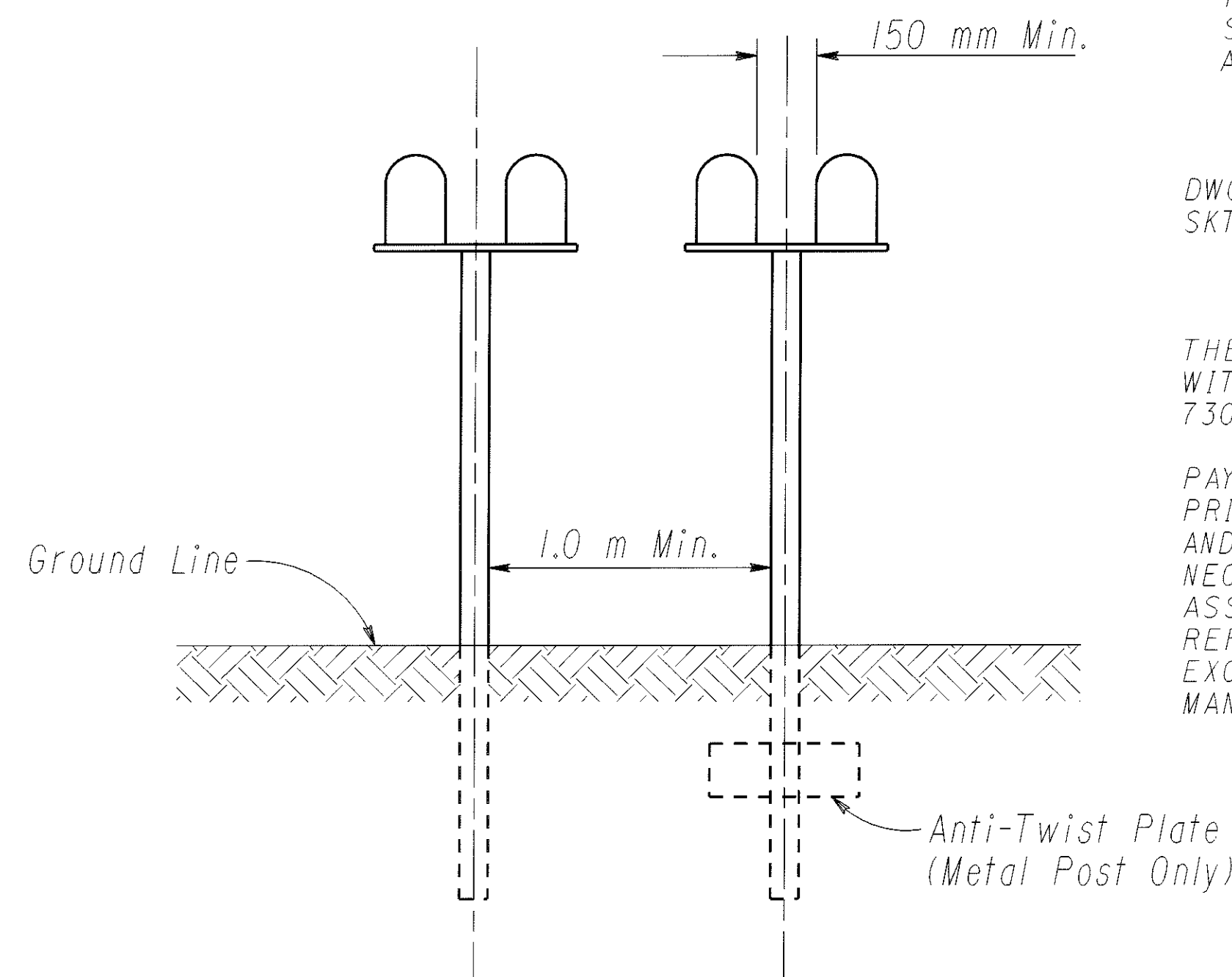


ELEVATION AT MAILBOX APPROACH

STATION	SIDE	EXISTING SUPPORT TYPE	SPECIAL	SPECIAL
			MAILBOX SUPPORT (SINGLE)	MAILBOX SUPPORT (DOUBLE)
			EACH	EACH
46+007.086	LT.	Single	1	1
46+104.227	LT.	Single	1	
TOTALS - CARRIED TO GENERAL SUMMARY			2	1



ANTI-TWIST PLATE



MULTIPLE MAILBOX INSTALLATION

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

Where the plans provide for a proposed conduit to be connected to, or cross over or under an existing sewer or underground utility, the Contractor shall locate the existing pipes or utilities both as to line and grade before starting to lay the proposed conduit.

If it is determined that the elevation of the existing conduit, or existing appurtenance to be connected, differs from the plan elevation or results in a change in the plan conduit slope, the Engineer shall be notified before starting construction of any portion of the proposed conduit which will be affected by the variance in the existing elevations.

If it is determined that the proposed conduit will intersect an existing sewer or underground utility if constructed as shown on the plan, the Engineer shall be notified before starting construction of any portion of the proposed conduit which will be affected by the interference with an existing facility.

Payment for all the operations described above shall be included in the contract price bid for the pertinent 603 or 605 conduit item.

ITEM 606 - ANCHOR ASSEMBLY, TYPE E-98

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING EITHER OF THE FOLLOWING GUARDRAIL END TERMINALS.

1) THE ET-2000 (1997) MANUFACTURED BY SYRO, INC., 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE LENGTH OF THE ET-2000 (1997) SYSTEM IS CONSIDERED TO BE 50'-0", INCLUSIVE OF TWO 25'-0" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG./REV.	ODOT APPROVAL DATE
SS265	MET-2000 (1997) PLAN, ELEVATION AND SECTIONS	6/20/97	3/6/98

2) THE SKT-350 MANUFACTURED BY ROAD SYSTEMS, INC., 7631 NEW CASTLE DRIVE, FRANKFORT, IL 60423 (TELEPHONE: 815-464-5917).

THE LENGTH OF THE SKT-350 SYSTEM IS CONSIDERED TO BE 50'-0", INCLUSIVE OF FOUR 12'-6" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO.	DRAWING NAME	DWG./REV.	ODOT APPROVAL DATE
SKT-4M	SEQUENTIAL KINKING TERMINAL (SKT-350) ASSEMBLY WITH 4 FOUNDATION TUBES	12/11/97	3/6/98

THE FACE OF THE TYPE E-98 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19, APPROXIMATELY 18" X 18".

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E-98, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

CALCULATED
CCS
CHECKED
CIV

GENERAL NOTES

HOL-39-46.140

NOTIFICATION OF WORK ZONE LANE RESTRICTIONS

The Contractor shall notify the Engineer at least eighteen (18) days prior to implementing any work zone restrictions that will reduce the width or vertical clearance of any lane on which traffic will be maintained during construction.

The Engineer shall immediately notify the District Roadway Services Manager to advise the Office of Highway Management of the restrictions.

TEMPORARY MAILBOXES

The Contractor shall erect and maintain temporary mailbox supports as per the requirements of 107.12 of the CMS.

The Contractor shall notify the local postmaster and property owners as set forth in Item Special, Mailbox Support.

The temporary supports, labor and necessary work associated to move the mailboxes shall be included with Item 614, Maintaining Traffic for payment.

PLACEMENT OF ASPHALT CONCRETE

Two-way traffic shall be maintained at all times. Traffic may be maintained, two-way in one lane for minimum periods of time with the use of flaggers for the asphalt paving operations or the setup of traffic control items. The details of the operation shall be subject to the approval of the Engineer.

TRENCH FOR WIDENING

Trench excavation for base widening shall be only on one side of the pavement at a time. The open trench shall be adequately maintained and protected with drums or barricades at all times. Placement of proposed subbase and base material shall follow as closely as possible behind excavation operations. The length of widening trench that is open at any one time shall be held to a minimum, and shall at all times be subject to approval of the Engineer.

OVERNIGHT TRENCH CLOSING

The base widening shall be completed to a depth of no more than 125 mm below the existing pavement by the end of each work day. This may be accomplished by placing 304 Aggregate Base material on the prepared subgrade in such a shape to meet the requirements of drop offs in work zones. No trench shall be left open overnight except for a short length (7.5 meters or less) of a work section at the end of the trench. In case work must be suspended because of inclement weather or other reasons, the trench for the uncompleted base widening shall be backfilled at the direction of the Engineer.

DRIVEWAY ACCESS

The Contractor shall maintain driveway access at all times, unless shown otherwise in the plan.

The following quantities have been carried to the Maintenance of Traffic Sub-Summary for maintaining drive access :

Item 410 - Traffic Compacted Surface, Type A or B - - - - - 20.0 Cu. Meter
Item 614 - Bituminous Concrete for Maintaining Traffic - - - - - 10.0 Cu. Meter

ITEM 615, TEMPORARY PAVEMENT, CLASS B, AS PER PLAN

The temporary pavement to be constructed for maintaining traffic shall remain in place upon completion of the project, thereby waiving the requirements of Section 615.08.

The composition of the temporary pavement shall be flexible.

GUARDRAIL REPLACEMENT

No hazard shall be left unprotected except for the actual time necessary to remove the existing guardrail, prepare the site, and install new guardrail in a continuous operation. The removal of all guardrail shall at all times be as directed by the Engineer. No guardrail shall be removed until the replacement material is on site, ready for installation. Failure to comply with this requirement shall be deemed sufficient cause to order work suspended until such time as the Engineer is assured of compliance.

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR

In addition to the requirements of 614 and the Ohio Manual of Uniform Traffic Control Devices (OMUTCD), a uniformed law enforcement officer and an official patrol car with working top-mounted emergency flashing lights shall be provided for controlling traffic for the following tasks:

- 1) For lane closures: during initial set-up periods, tear down periods, substantial shifts of a lane closure point, or when new lane closure arrangements are initiated.
- 2) During the implementation of each phase of work as deemed necessary by the Engineer.
- 3) During a traffic signal installation.

Law enforcement officers (LEO's) should not be used where the OMUTCD intends that flaggers be used. The LEO's are considered to be employed by the Contractor, and the Contractor shall be responsible for their actions. Although they are employed by the Contractor, the Project Engineer shall have control over their placement. The official patrol car shall be a public safety vehicle as required by the Ohio Revised Code.

The Contractor shall make arrangements for these services with the Ohio Highway Patrol, Wooster Post, telephone (330) 264-0575.

Law enforcement officers with patrol car required by the traffic maintenance tasks above shall be paid for on an hourly basis under Item 614, Law Enforcement Officer With Patrol Car. The following estimated quantity has been carried to the Maintenance of Traffic Sub-Summary:

Item 614, Law Enforcement Officer With Patrol Car - - - - - 250 Hour

The hours paid shall include minimum show-up time required by the law enforcement agency involved.

If the Contractor wishes to utilize LEO's for flagging and traffic control other than that required in these plans, he may do so at his own expense. Payment for the excess above the contract requirements will be included under Item 614, Maintaining Traffic.

614, TEMPORARY SIGNAL

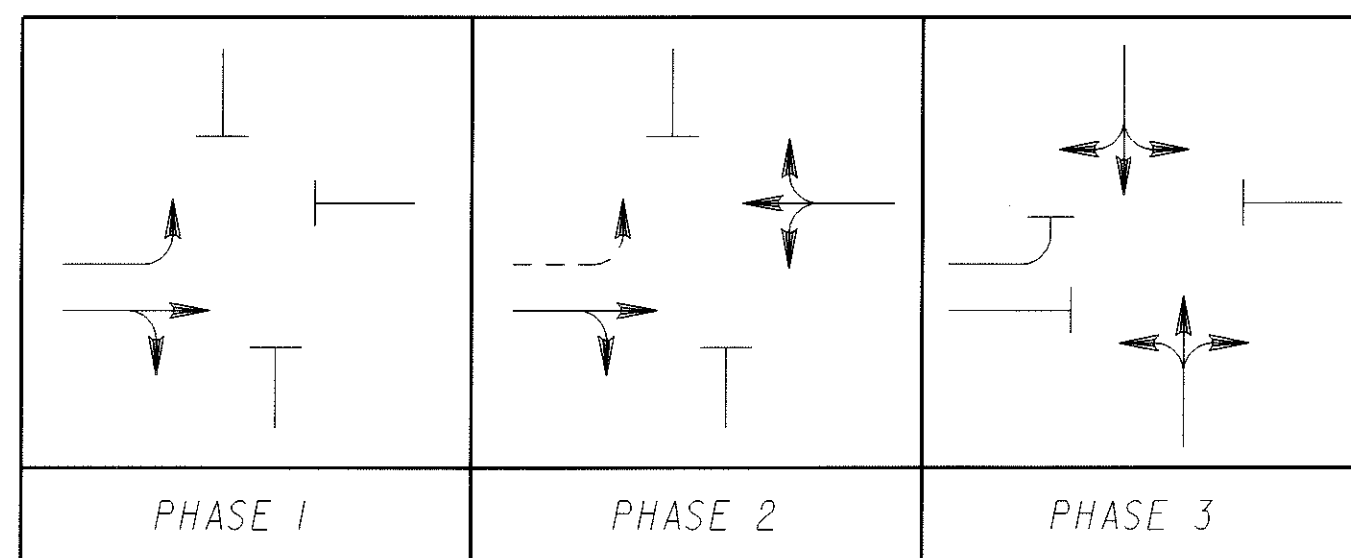
The Contractor shall maintain the temporary and/or the new traffic signal completely at all times beginning with Phase 2 through the completion of the project. Signal operation shall be as directed by the Engineer.

Temporary signal pole locations shown in the plan are approximate, the locations shall be determined by the Contractor with the approval of the Engineer.

Law Enforcement Officer with Patrol Car shall be used while erecting the temporary and proposed signal system and when realigning signal heads between phases.

The Contractor shall furnish, at a minimum, a controller capable of providing three (3) different cycle lengths and turning schemes per day during different days of the week.

The Contractor shall set the initial temporary signal timing in the field and be subjected to adjustments as directed by the Engineer. The signal shall be a three (3) phase system as follows :



The suggested start up timing is as follows :

PHASE	G	Y	R	TOTAL
1	10.0	3.5	1.0	14.5
2	20.5	3.5	1.0	25.0
3	16.0	3.5	1.0	20.5
TOTAL CYCLE LENGTH				60.0

ITEM 614 - MAINTAINING TRAFFIC

A minimum of one lane of traffic in each direction shall be maintained at all times by use of the existing pavement, the completed pavement, 615 temporary pavement, and temporary surfaces using 614 - Bituminous Concrete for Maintaining Traffic.

Length and duration of lane closures and restrictions shall be at the approval of the Engineer. It is the intent to minimize the impact to the traveling public. Lane closures or restrictions over segments of the project in which no work is anticipated within a reasonable time frame, as determined by the Engineer, shall not be permitted. The level of utilization of maintenance of traffic devices shall be commensurate with the work in progress.

A phase construction sequence of work has been provided in the plan. It is the intent of the phase construction sequence of work to provide a safe work area for the Contractor while maintaining traffic in a manner which is safe and efficient for the traveling public; therefore, all phases shall have strict adherence. Conflicting pavement markings, signs, and temporary raised pavement markings (TRPM'S) shall be eliminated to the satisfaction of the Engineer prior to commencing any phase. Conflicting pavement markings shall be removed using water or abrasive blasting methods only. The Contractor is responsible for maintaining the existing guide and regulatory signs throughout the phase construction work, and such signs shall be moved or covered as directed by the Engineer. Temporary pavement markings, raised pavement markers and sign installation shall be accomplished in one day, with flaggers being utilized for the protection of vehicular traffic during the installation of these items.

Phase 1 of 5 has a time restriction with liquidated damages. The Contractor shall make the necessary arrangements for labor, equipment and material to comply with requirements. See sheet no. 10-13 for Phase 1 Maintenance of Traffic details.

If the Contractor so elects, he may submit, to the District II Construction Engineer, for review and approval alternate methods for the maintenance of traffic, provided the intent of the above provisions is followed and no additional inconvenience to the traveling public results therefrom. No alternate plan shall be placed into effect until approval has been granted in writing by the Engineer. Submission of an alternate method must be done at or before the preconstruction meeting. If an alternate method is approved, it shall at all times be subject to the Engineer's approval.

The following estimated quantities have been included in the Maintenance of Traffic Sub-Summary for use as directed by the Engineer for the maintenance of traffic:

Item 410, Traffic Compacted Surface, Type A or B - - - - - 10.0 Cu. Meter
Item 614, Bituminous Concrete for Maintaining Traffic - - - - - 15.0 Cu. Meter
Item 614, Temporary Center Line, Class I - - - - - 0.4 Kilometer
Item 614, Temporary Edge Line, Class I - - - - - 0.8 Kilometer
Item 614, Temporary Stop Line, Class I - - - - - 10.0 Meter

All work and traffic control devices shall be in accordance with 614 and other applicable portions of the specifications, as well as the Ohio Manual of Uniform Traffic Control Devices. Payment for all labor, equipment and materials shall be included in the Lump Sum contract price for 614, Maintaining Traffic, unless separately itemized in the plan.

TEMPORARY TRAFFIC SIGNALS

All temporary traffic signals shall have hardware installed with the controller to switch power to a portable generator. The Contractor shall have on the project a compatible portable generator at all times the temporary traffic signals are in use. The portable generator shall have the electrical capacity to power the traffic signals in the event of an electrical power outage.

In lieu of the preceding requirements, the signal heads shall be Light Emitting Diode (LED) Traffic Signals. The LED shall be Dialight, 12" traffic signal bulbs with a minimum of 190 clusters or an approved equal. The controller for the LED shall have an automatic battery backup system in the event of an electrical power outage. The battery backup system shall have a minimum capacity to operate the traffic signals for a 24 hour period without recharging.

The Contractor shall be responsible for periodically recharging or refueling the system to keep the signals functioning for the entire duration of the power outage. All cost's for materials, equipment, and labor shall be in the contract price for Item 614, Maintaining Traffic.

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MAINTENANCE OF TRAFFIC

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FROM SHEET NO.	410	614	614	614	SPECIAL	614	614	614	614	614	614	614	615		REMARKS
	Traffic Compacted Surface, Type A or B	Bituminous Concrete for Maintaining Traffic	Law Enforcement Officer with Patrol Car	Temporary Raised Pavement Marker	Temporary Guardrail	Temporary Center Line, Class I	Temporary Edge Line, Class I	Temporary Stop Line, Class I	Temporary Channelizing Line, Class I	Temporary Lane Arrow, Class I	Temporary Word on Pavement, 1800mm, Class I		Temporary Pavement, Class B	Temporary Pavement, Class B, As Per Plan	
	Cu. Meter	Cu. Meter	Hour	Each	Meter	Kilometer	Kilometer	Meter	Meter	Each	Each		Sq. Meter	Sq. Meter	
7	30.0	25.0	250			0.40	0.80	10.0							
13				332	11.43	0.52	0.93	10.4							
17				53		0.04	0.12	19.5	50.0	3	2			115.2	
21				388		0.74	1.04	26.2	50.0	3	2				
23				114		0.17	0.35	3.0					333.2		
25				92		0.13	0.33	3.4							
71						1.80	2.58		445	16					Qty. from Traffic Control Summary
TOTALS	30.0	25.0	250	979	11.43	3.80	6.15	72.5	545.0	22	4		333.2	115.4	

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MAINTENANCE OF TRAFFIC SUB-SUMMARY
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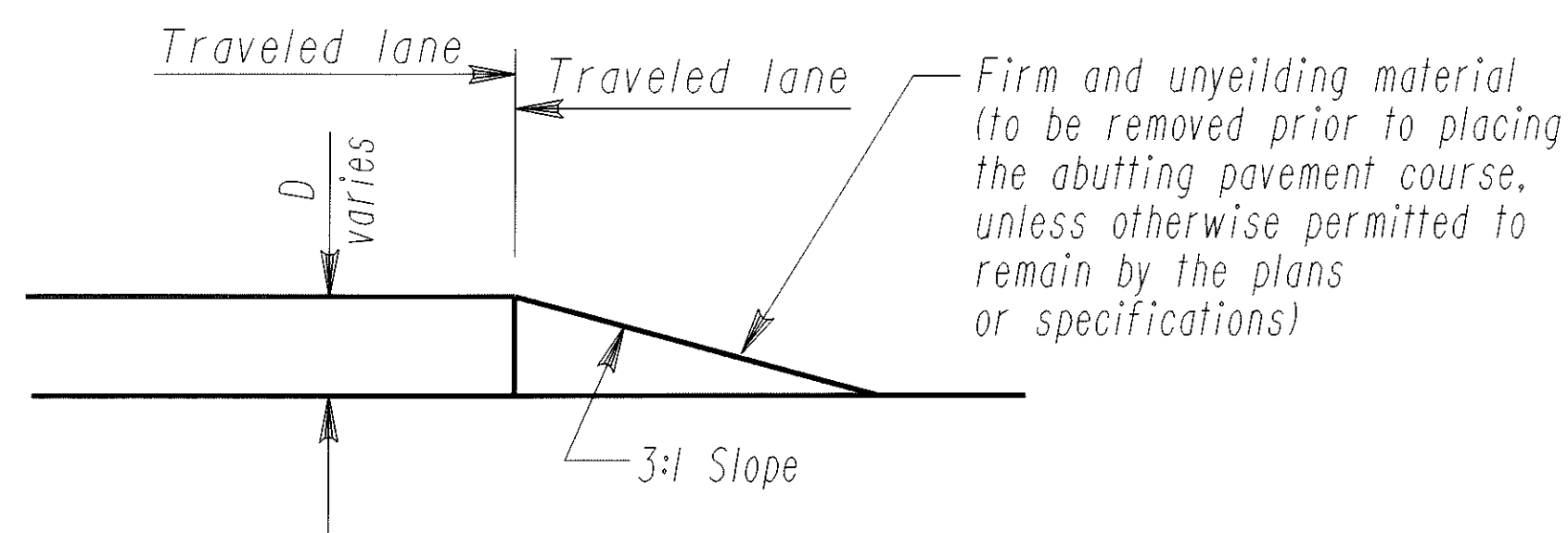
TOTALS- Carried to General Summary

GENERAL NOTES

- It is intended that this drawing be used for treatment of drop-offs that develop during construction operations, and that are not otherwise provided for in the construction plans. Where the plans do not provide specific items for labor, equipment, or materials to implement the drop-off treatments specified hereon, they shall be included for payment in the lump sum bid for Item 614 - Maintaining Traffic.
- While the need for certain advisory signing is noted hereon, it is not intended that this be indicative of all signing that may be required to advise or warn motorists, and all requirements of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) must be fulfilled.
- In urban or otherwise heavily developed areas where pedestrians and/or bicyclists may be present in significant numbers, additional signing and protective measures other than those shown hereon may be required.
- The drop-off treatment selected for use at any given location shall be as appropriate for the prevailing conditions at the site.
- Where concrete barrier is specified, it shall be in accordance with Standard Construction Drawing RM-4.2M and Item 622.
- When drums are specified for a dropoff condition, a minimum number of four drums shall be used. Spacing shall be as indicated in the plans or as specified in the OMUTCD.
- When OW-151 (Low Shoulder) signs or OW-171 (Uneven Lanes) and OWP-171 Signs are required, they shall be placed 229m in advance of the construction, on all intersecting entrance ramps within the limits of the condition and immediately beyond all intersecting roadways within the limits of the condition. When the dropoff condition extends more than 0.80km, additional signs should be erected at intervals of 1.61km or less.
- For locations, such as at ramps, lane shifts, lane closures, etc., where traffic is required to negotiate any difference in elevation between pavements, a 3:1 slope treatment similar to the Optional Wedge Treatment shall be provided.
- Portable concrete barrier shall be placed on the same level as the traffic surface and shall not encroach on lane width(s) designated as the minimum required for traffic use. Where drums are used, and their presence would reduce traveled lane widths to less than 3m, drums may be placed on the opposite level from that of traffic provided the dropoff depth does not exceed 127mm and approval is granted by the Project Engineer.
- Pavement repairs (or similar work):
 - Lengths greater than 18m - utilize appropriate treatment from Condition I.
 - Lengths of 18m or less - repairs shall be effected in accordance with 255.08. Drums may be used as a separator adjacent to the traveled lane.

OPTIONAL WEDGE TREATMENT (MILLING OR RESURFACING)

- This treatment may be used when permitted for Condition I only.
- OW-171 and OWP-171 signs required.



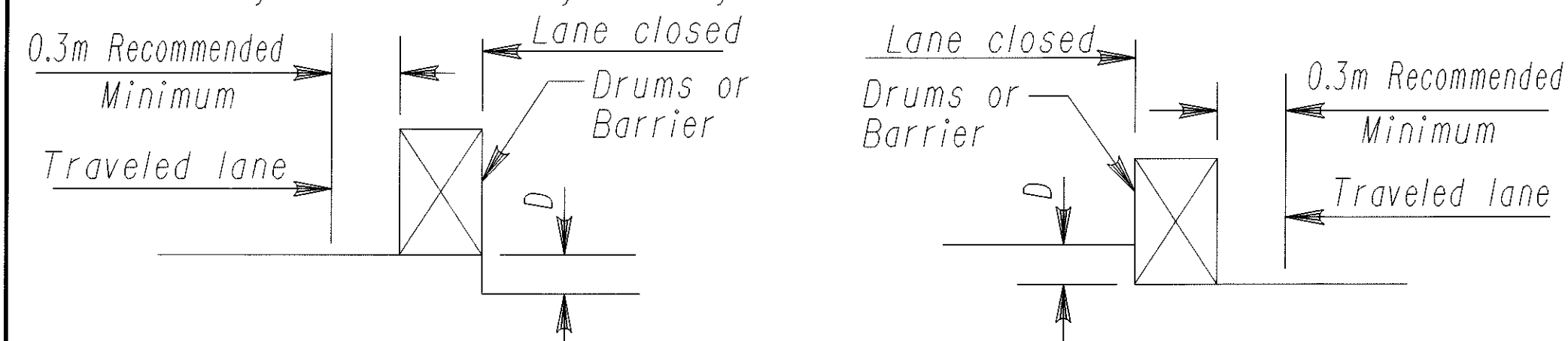
CONDITION I

DROPOFFS BETWEEN TRAVELED LANES

- These treatments are to be used for resurfacing, pavement planing, excavation, etc. between or within traveled lanes.

D (mm)	Treatment
≤ 38	Erect OW-171 and OWP-171 signs.
>38 ≤76	1) Lane closure utilizing drums* as shown below or 2) Optional Wedge Treatment.
>76 ≤127	Lane closure utilizing drums as shown below.
>127	Lane closure utilizing portable concrete barrier as shown below

*Cones may be used for daytime only conditions.



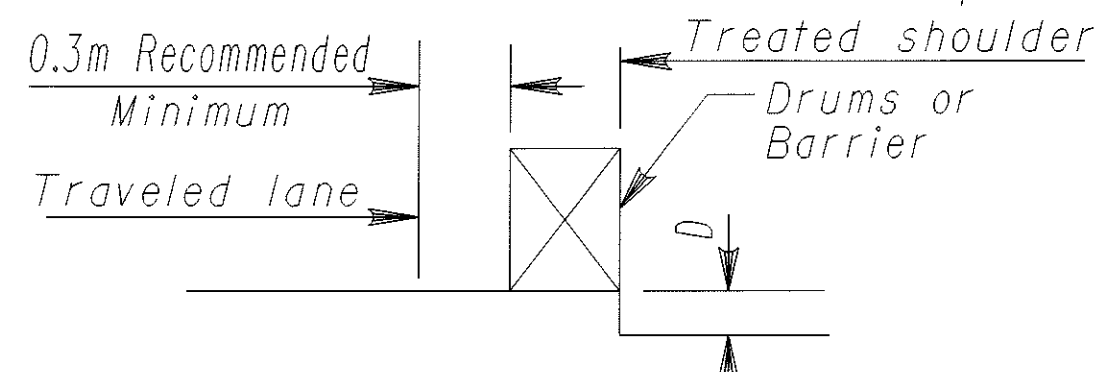
CONDITION II

DROPOFFS WITHIN GRADED SHOULDER AREA

- The treatments indicated below are for use in conjunction with resurfacing, planing, or excavations within the graded shoulder area.
- The graded shoulder area is that flat or gradually sloping area between the edge of a normally traveling lane and the more steeply sloping ditch foreslope or embankment slope. Its surface may be soil or turf, and/or it may be inclusive of a "treated" area (improved with aggregates, asphaltic materials, or concrete). For the purposes herein, its maximum width shall be considered to four (4) meters.

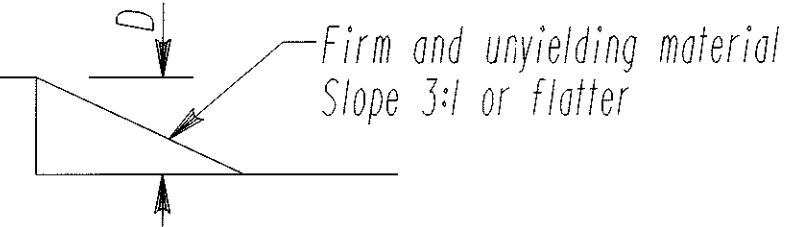
D (mm)	Treatment
≤ 38	1) If edgelines are present, no treatment necessary or 2) Erect OW-171 and OWP-171 signs.
>38 ≤127	1) If min. lane width* requirements can be met, maintain lanes utilizing drums as shown below or 2) If min. lane width* requirements cannot be met, close adjacent lane utilizing drums or 3) Optional Shoulder Treatment.
>127 ≤305 Daylight only	If min. lane width* requirements can be met, maintain lanes utilizing drums as shown below.
>127 ≤610	1) If min. lane width* requirements can be met, maintain lanes utilizing portable concrete barrier as shown below or 2) If min. lane width* requirements cannot be met, close adjacent lane utilizing drums.
>610	Lane closure utilizing portable concrete barrier as shown below.

*Minimum lane widths shall be 3m unless otherwise specified in the plans.



OPTIONAL SHOULDER TREATMENT

- This treatment may not be used within a bituminous shoulder where a hot longitudinal joint per 401.15 is required
- OW-151 signs required.



CONDITION III

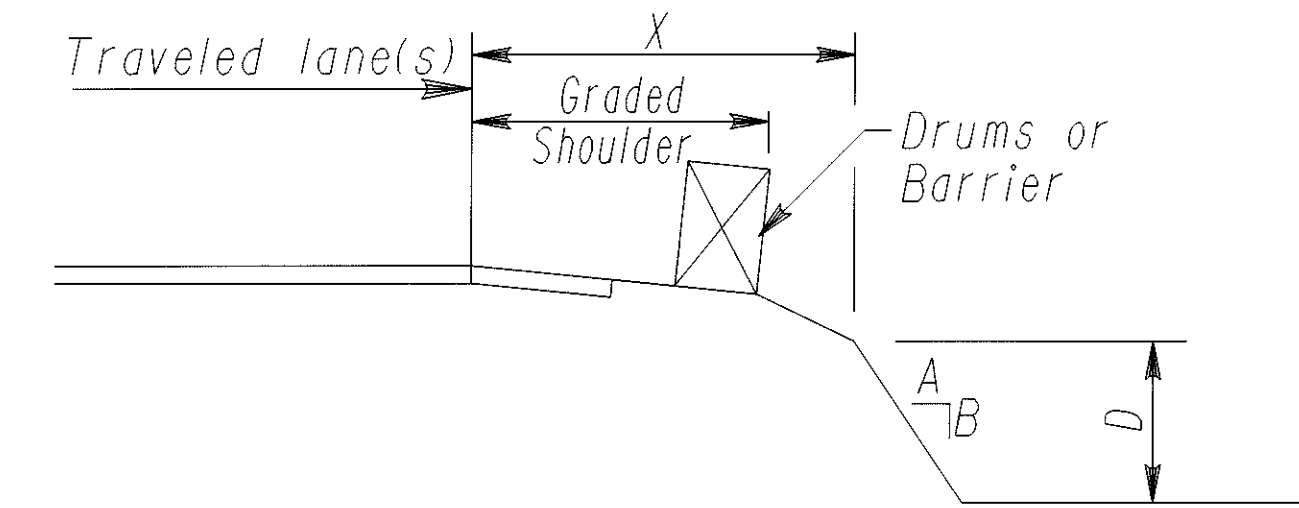
DROPOFFS BEYOND GRADED SHOULDER OR BACK OF CURB

- See Note 2 under Condition II.
- Use Chart A or B below, as applicable

CHART A

USE FOR:

- Uncurbed Facilities.
- Curbed Facilities, where:
 - Curbs are less than 152mm in height.
 - Curbs are 152mm or greater in height and the legal speed is greater than 64 kph.



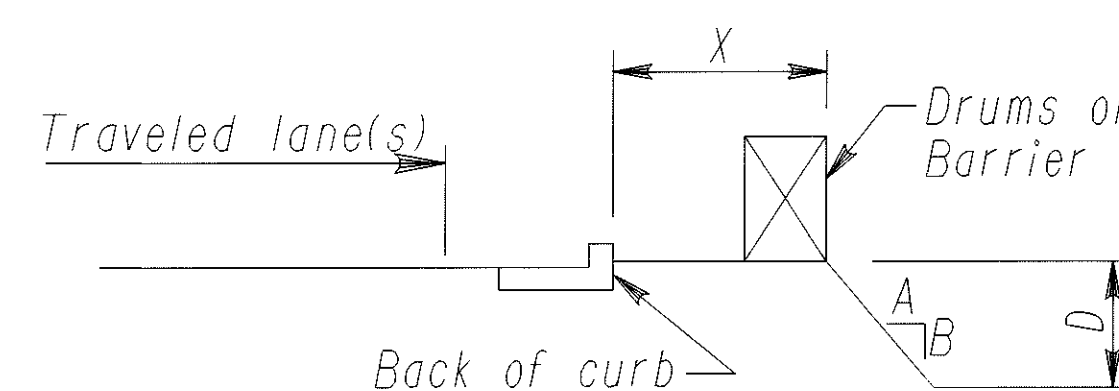
X (m)	D (mm.)	A/B	Treatment Required	
			Day	Night
≤1	Any	Any	(a)	(a)
>1 ≤9	Any	3:1 or Flatter	None	None
>1 ≤4	≤76	Steeper than 3:1	None	None
>1 ≤4	>79 ≤305	Steeper than 3:1	Drums	Drums
>1 ≤4	>305	Steeper than 3:1	Drums	Barrier
>4 ≤6	≤305	Steeper than 3:1	None	None
>4 ≤6	>305 ≤610	Steeper than 3:1	Drums	Drums
>4 ≤6	>610	Steeper than 3:1	Drums	Barrier
>6 ≤9	≤610	Steeper than 3:1	None	Drums
>6 ≤9	>610	Steeper than 3:1	Drums	Barrier
>9	Any	Any	None	None

(a) Use treatment specified under Condition II

CHART B

USE FOR:

- Curbed facilities where the curb is 152mm or greater in height and the legal speed is 64 kph or less.



X (m)	D (mm.)	A/B	Treatment Required	
			Day	Night
0-3	<305	Any	None	Drums
0-3	>305	Any	Drums	Drums
>3	Any	Any	None	None

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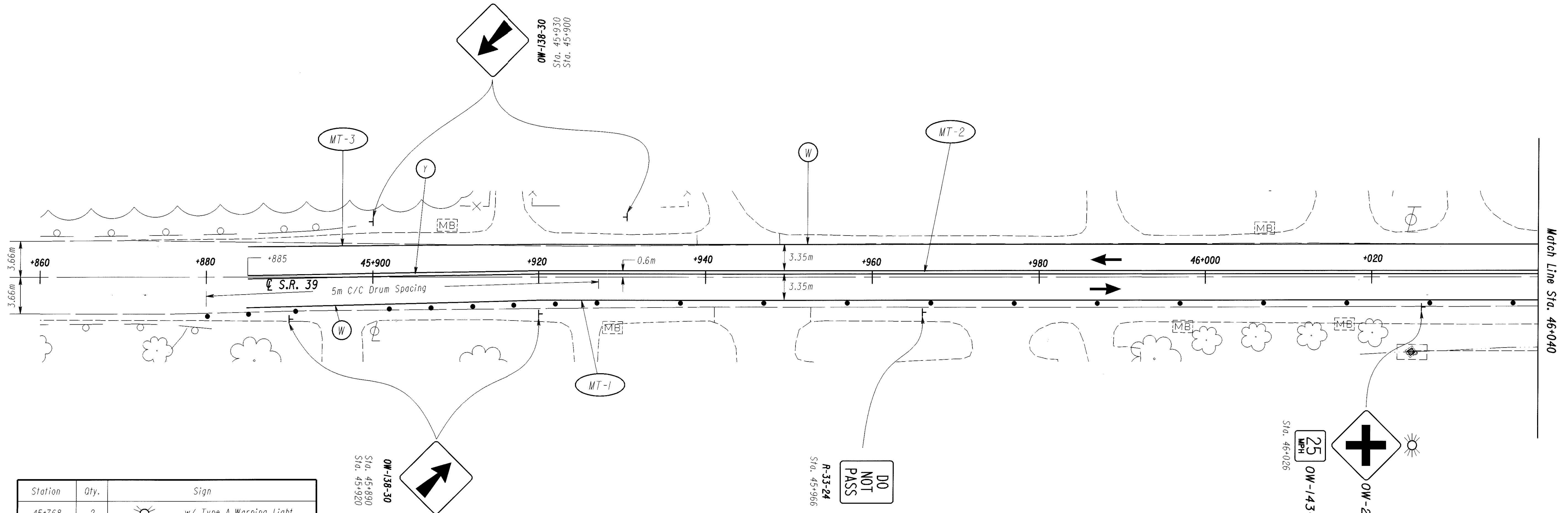
DROP OFFS IN WORK ZONES

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LEGEND

- Temporary Signal Head
- Temporary Pavement
- Drums spaced at 10m c/c unless otherwise shown
- Temporary White Edge Line
- Temporary Center Line
- Work Area

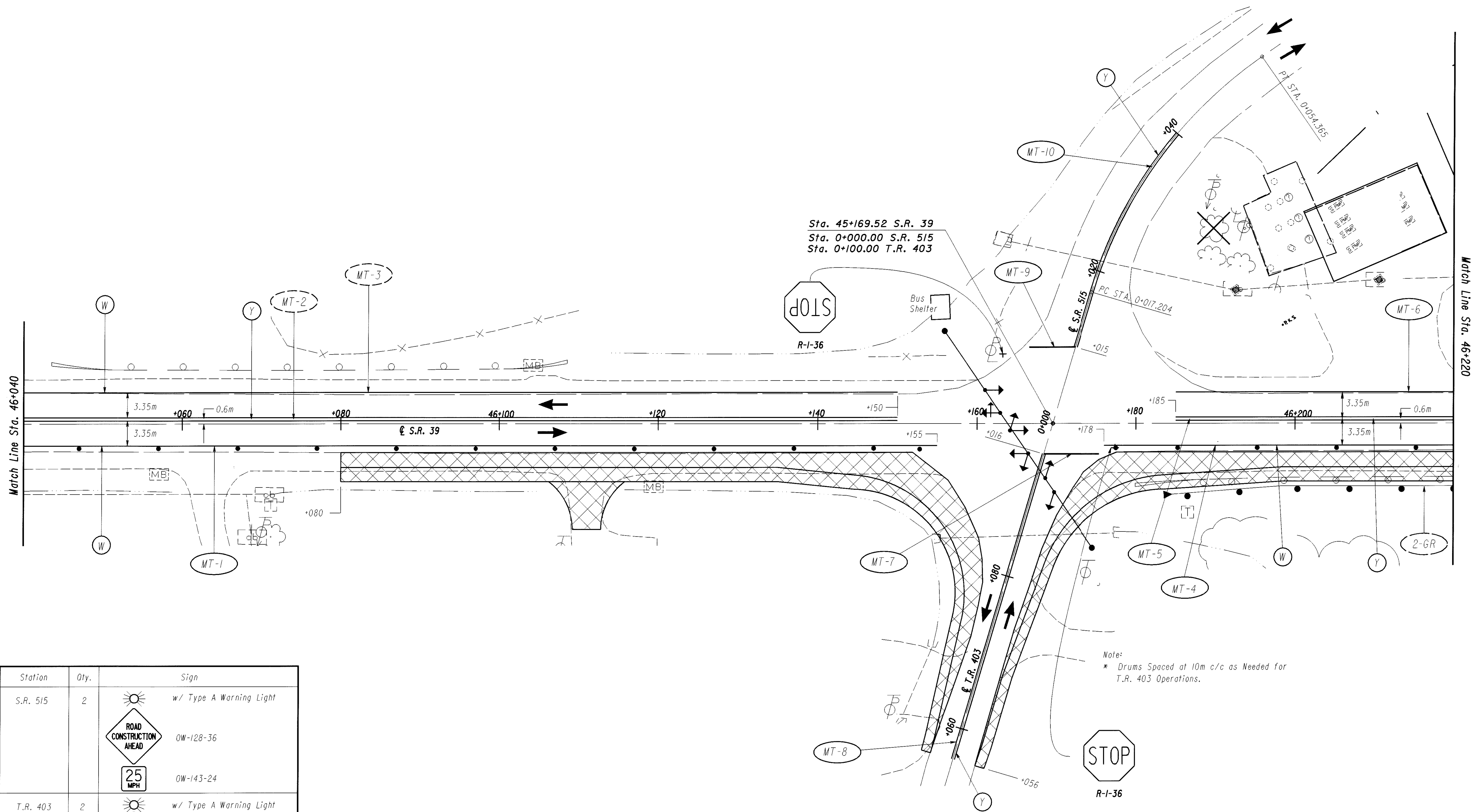


Station	Qty.	Sign
45+768	2	w/ Type A Warning Light OW-128-36 OW-143-24
45+616	2	w/ Type A Warning Light OW-128-36 OW-143-24
45+785	1	OC-39L-30

For Quantities, See Sheet No. 13

PHASE 1 - MAINTENANCE OF TRAFFIC

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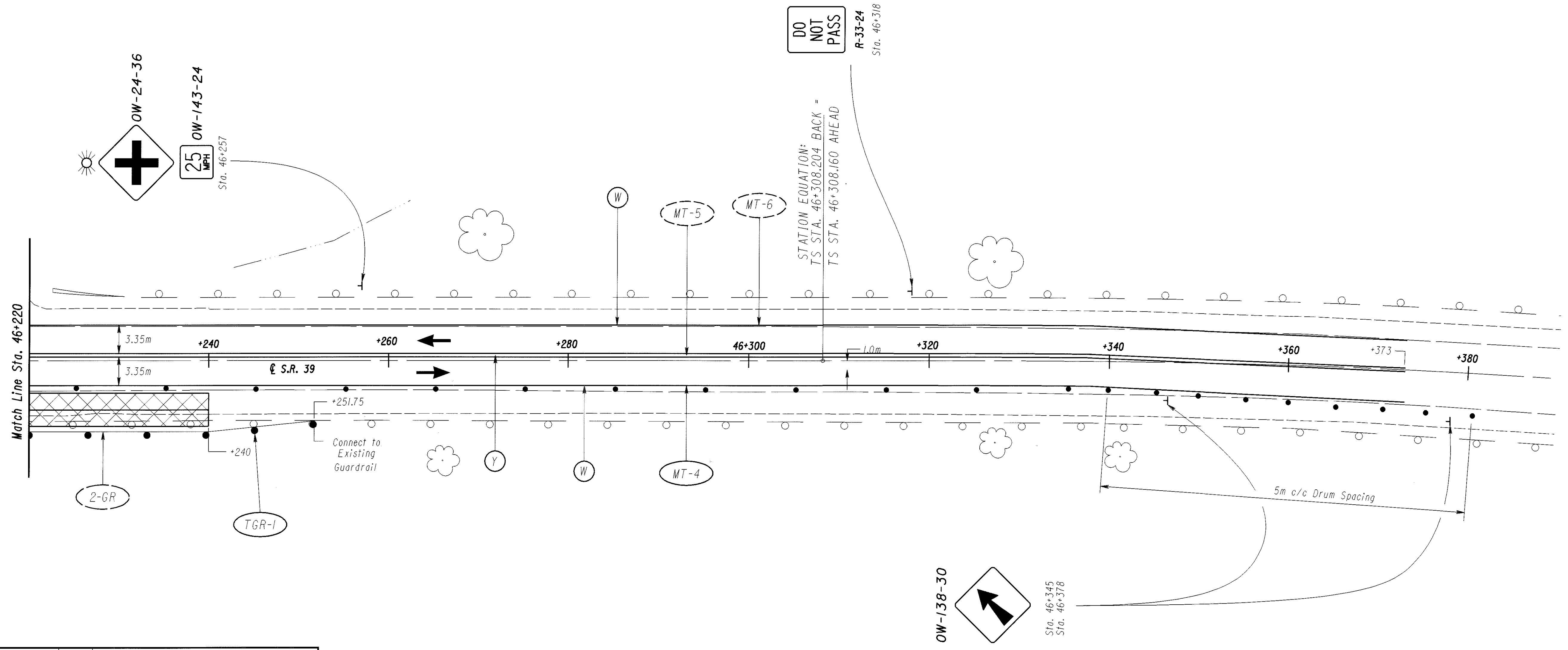


Sta. 45+169.52 S.R. 39
Sta. 0+000.00 S.R. 515
Sta. 0+100.00 T.R. 403

Note:
* Drums Spaced at 10m c/c as Needed for T.R. 403 Operations.

Station	Qty.	Sign
S.R. 515	2	w/ Type A Warning Light ROAD CONSTRUCTION AHEAD OW-128-36 25 MPH OW-143-24
T.R. 403	2	w/ Type A Warning Light ROAD CONSTRUCTION AHEAD OW-128-36 25 MPH OW-143-24

For Legend, See Sheet No. 10
For Quantities, See Sheet No. 13

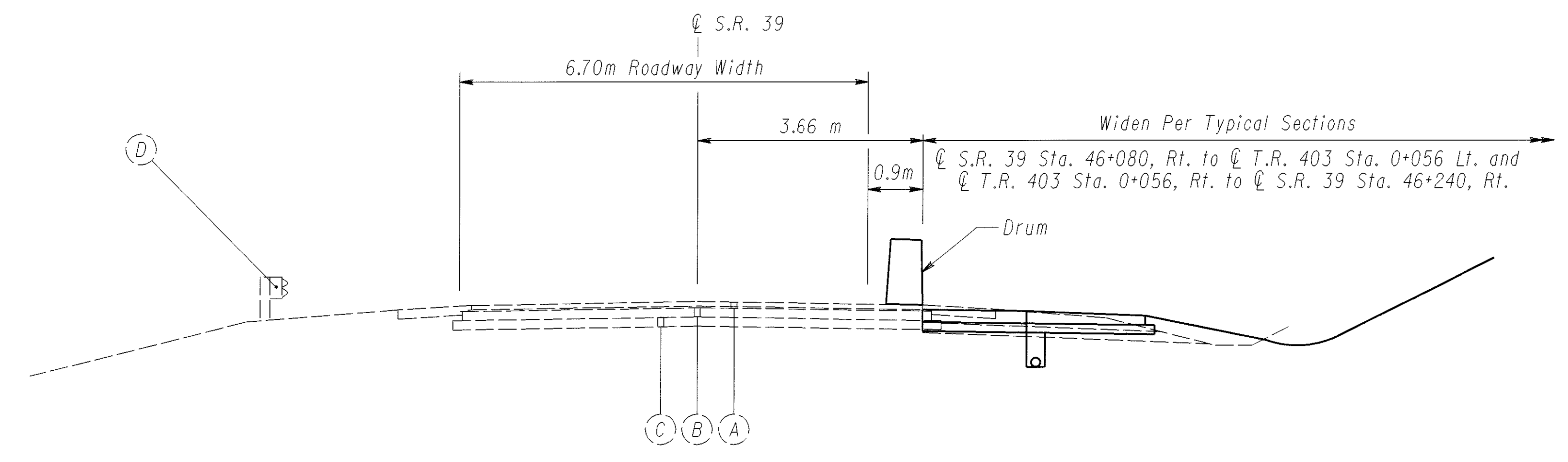


Station	Qty.	Sign
46+490	2	w/ Type A Warning Light OW-128-36 OW-143-24
46+642	2	w/ Type A Warning Light OW-128-36 OW-143-24
46+414	1	OC-39R-30

For Legend, See Sheet No. 10
For Quantities, See Sheet No. 13

PHASE I - MAINTENANCE OF TRAFFIC QUANTITIES

Reference	STATIONING				Special				614			
	FROM	TO	SIDE	ROUTE	Temporary Guardrail	Temporary Edge Line, Class I	Temporary Center Line, Class I	Temporary Stop Line, Class I	METER	km	km	METER
MT-1	45+885	46+150	RT.	39						0.27		
MT-2	45+885	46+150	℄	39							0.27	
MT-3	45+885	46+155	LT.	39						0.27		
MT-4	46+178	46+373	RT.	39						0.20		
MT-5	46+185	46+373	℄	39							0.19	
MT-6	46+185	46+373	LT.	39						0.19		
MT-7		0+084	RT.	TR 403								7.0
MT-8		0+056	℄	TR 403								0.03
MT-9		0+015	LT.	515								3.4
MT-10		0+015	℄	515								0.03
TGR-1	46+240	46+251.75	RT.						11.43			
Totals Carried to Sheet No. 8									11.43	0.93	0.52	10.4



MAINTENANCE OF TRAFFIC THROUGH PAVEMENT WIDENING - S.R. 39
Sta. 45+927 to Sta. 46+338

LEGEND

- Ⓐ — 100mm Asphalt Concrete
- Ⓑ — 152mm Aggregate Base
- Ⓒ — 152mm Subbase
- Ⓓ — Existing Guardrail, Type 5

ITEM 614 - TEMPORARY RAISED PAVEMENT MARKERS

PHASE I	STATIONING			SPACING	TYPE A			REMARKS
	FROM	TO	SIDE	METER	W	Y	Y/Y	(LINE TYPE)
	45+885	46+155	℄	6.0			90	SUPPLEMENT CENTER LINE
45+885	46+155	RT.	6.0	45			SUPPLEMENT EDGE LINE	
45+885	46+155	LT.	6.0	45			SUPPLEMENT EDGE LINE	
46+185	46+373	℄	6.0			64	SUPPLEMENT CENTER LINE	
46+185	46+373	RT.	6.0	32			SUPPLEMENT EDGE LINE	
46+178	46+373	LT.	6.0	32			SUPPLEMENT EDGE LINE	
0+056	0+084	℄	6.0			12	SUPPLEMENT CENTER LINE for T.R. 403	
0+015	0+040	℄	6.0			12	SUPPLEMENT CENTER LINE for S.R. 515	
Sub-total				154		178		
Totals Carried to Sheet No. 8					332			

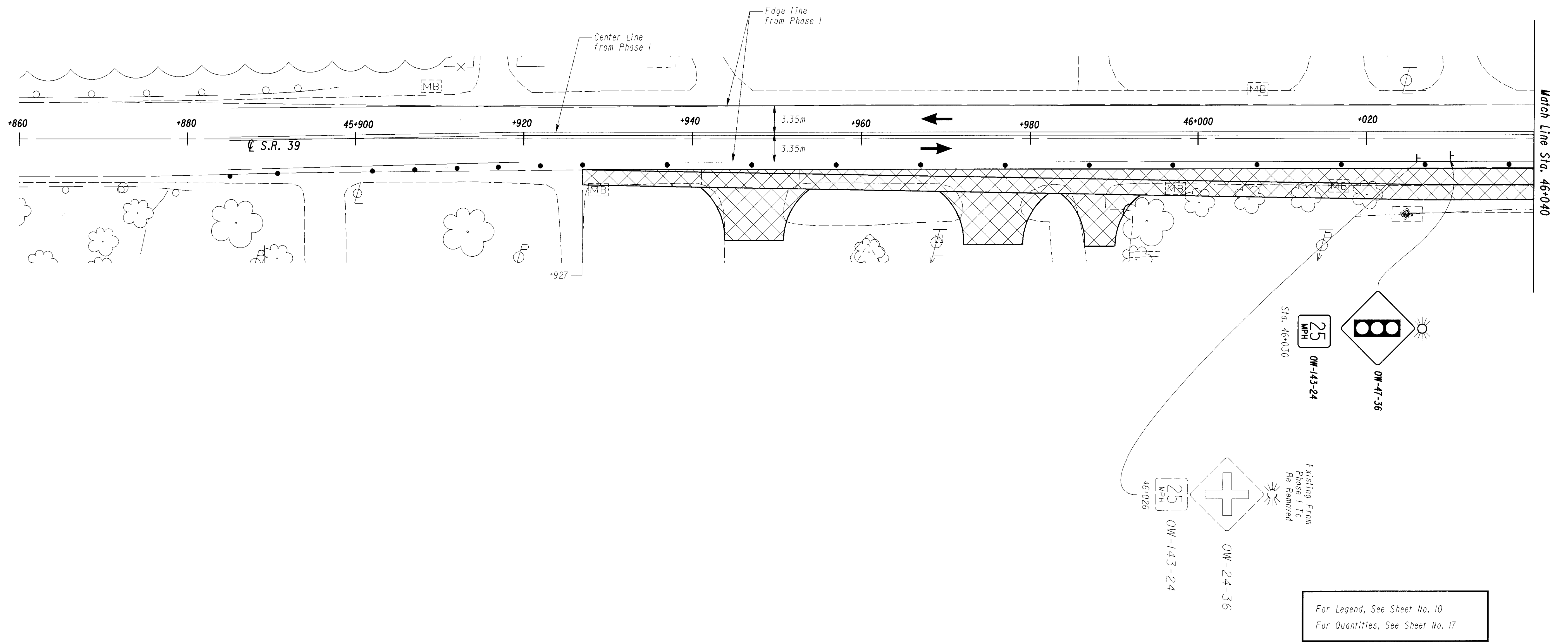
NOTE : SIDE is in Relation to Increasing Station.

PHASE I WORK

- 1.) Place temporary pavement markings, signs, raised pavement markers and drums.
- 2.) Maintain two-way traffic on the existing pavement. Use Law Enforcement Officer (LEO) to control intersection S.R. 39 and S.R. 515 movements during construction operation hours.
- 3.) The Contractor shall complete steps 4 and 5 in a maximum of ten (10) consecutive calendar days. Failure to comply, the Contractor will be assessed liquidated damages of \$1,000.00 per day per specification 108.07. The Contractor shall immediately proceed to PHASE 2 WORK and establish the left turn storage lanes on S.R. 39.
- 4.) Construct pavement widening as per the typical sections up to the 301 - Bituminous Aggregate Base surface for S.R. 39 Sta. 46+080, Rt. side to T.R. 403 Sta. 0+056, Lt. side. Maintain T.R. 403 with drums and temporary pavement markings as directed by the Engineer.
- 5.) Construct pavement widening as per the typical sections up to the 301 - Bituminous Aggregate Base surface for T.R. 403 Sta. 0+056, Rt. side to S.R. 39 Sta. 46+240, Rt. side. Maintain T.R. 403 with drums and temporary pavement markings as directed by the Engineer.
- 6.) Construct temporary traffic signal, using flaggers and LEO's to maintain traffic during installation and testing of system. The temporary traffic signal shall be covered until placement of the left turn lane pavement markings for S.R. 39 are completed.

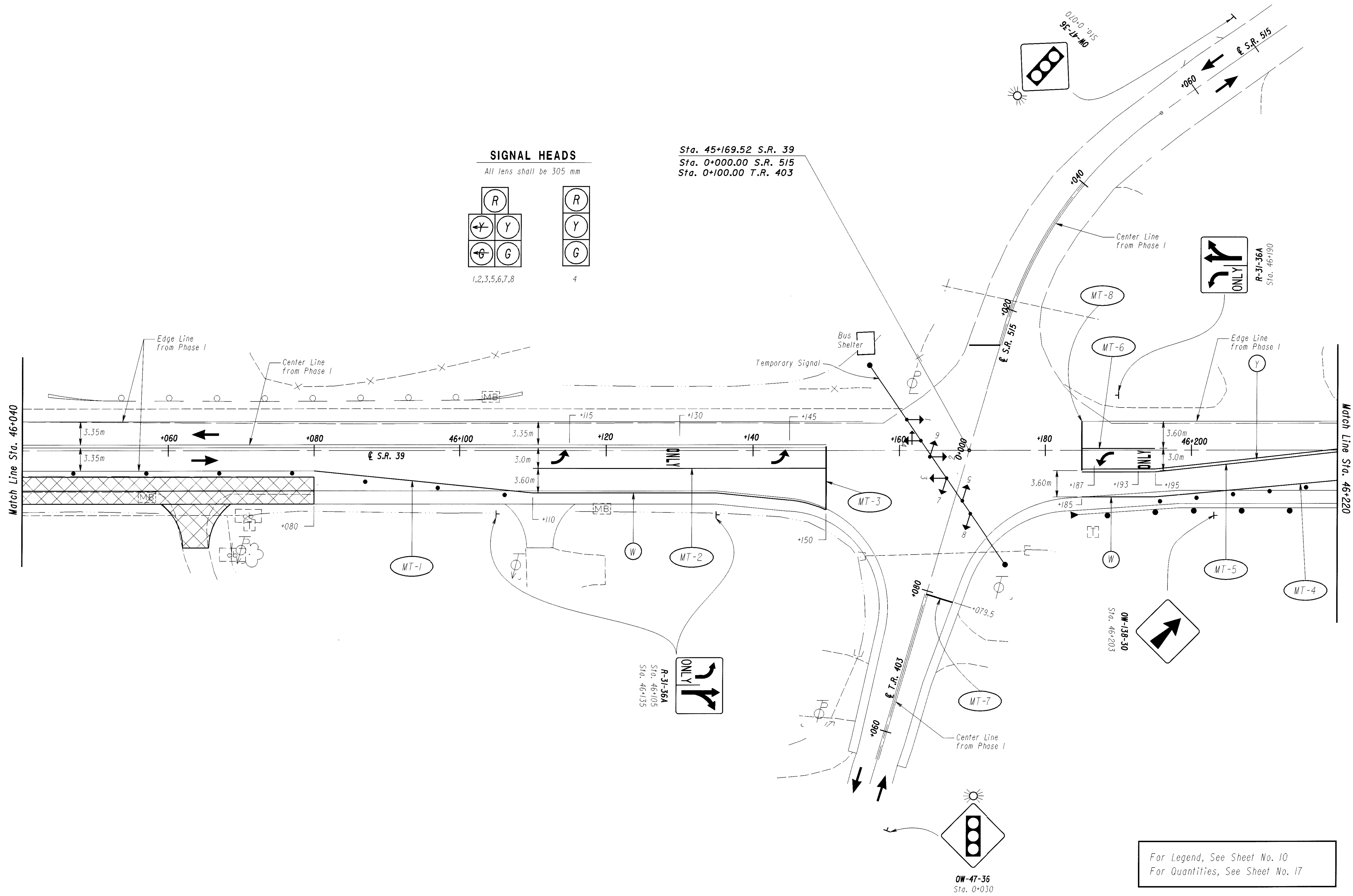
PHASE 2 - MAINTENANCE OF TRAFFIC

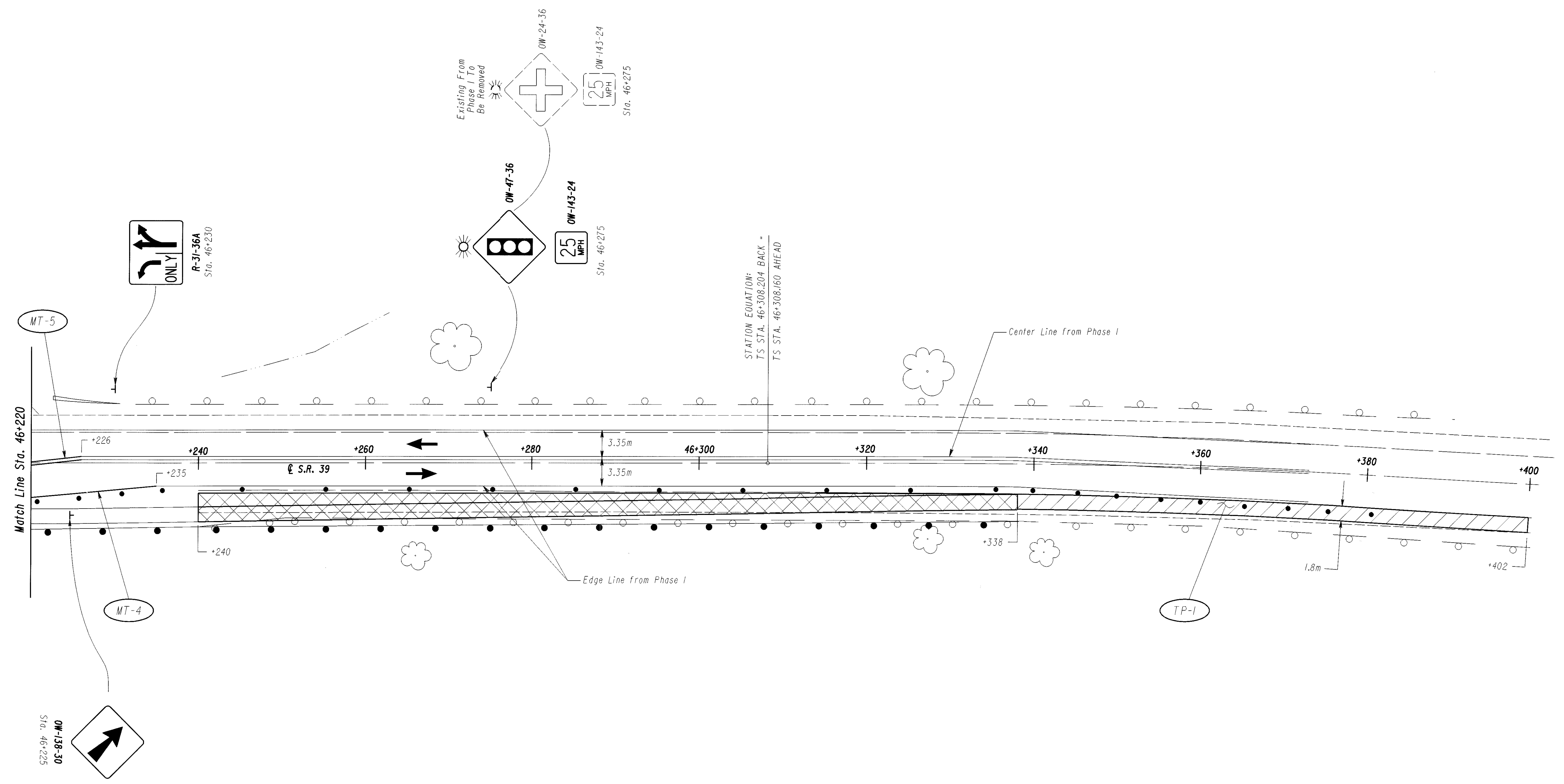
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PHASE 2 - MAINTENANCE OF TRAFFIC

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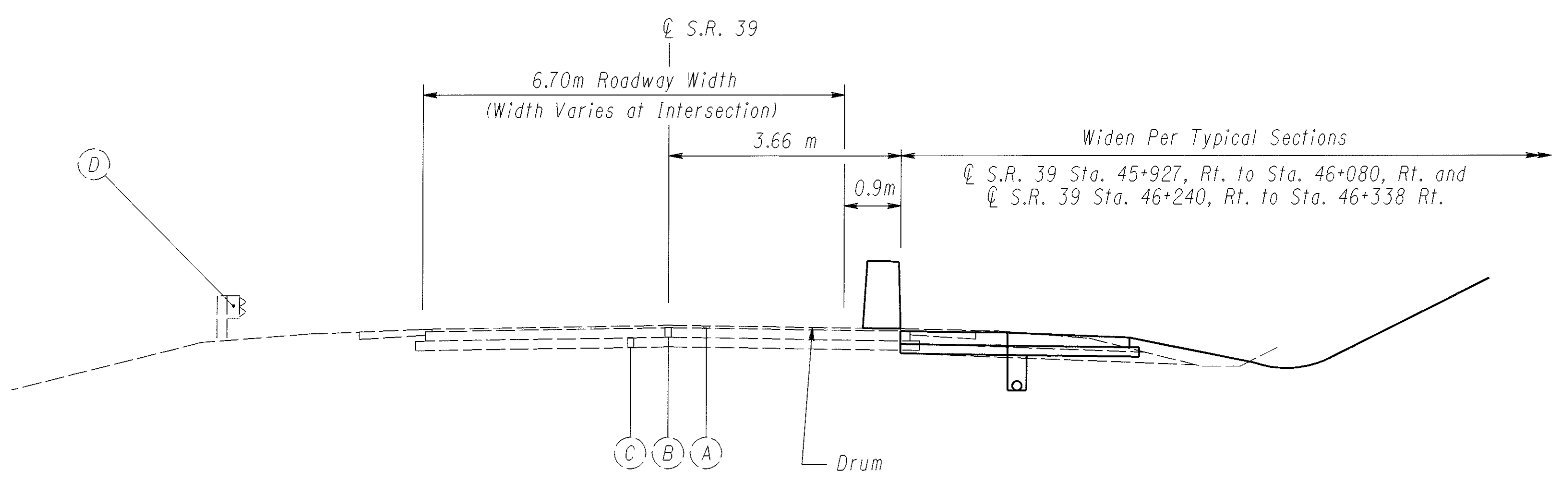




For Legend, See Sheet No. 10
For Quantities, See Sheet No. 17

PHASE 2 - MAINTENANCE OF TRAFFIC QUANTITIES

Reference	STATIONING			614							615
	FROM	TO	SIDE	Temporary Stop Line, Class I	Temporary Edge Line, Class I	Temporary Center Line, Class I	Temporary Channelizing Line, Class I	Temporary Lane Arrow, Class I	Temporary Word on Pavement, 1800mm, Class I	Temporary Pavement, Class B, As Per Plan	
				Meter	km	km	Meter	EACH	EACH	Sq. Meter	
MT-1	46+080	46+150	RT.		0.07						
MT-2	46+110	46+150	℄				40.0				
MT-3	46+150			8.70							
MT-4	46+185	46+235	RT.		0.05						
MT-5	46+185	46+226	℄			0.04					
MT-6	46+185	46+195	LT.				10.0				
MT-7	0+079.50 ℄ T.R. 403			3.80							
MT-8	46+185			7.00							
TP-1	46+338	46+402	RT.							115.2	
		46+115						/			
		46+130							/		
		46+145						/			
		46+187						/			
		46+193							/		
Totals Carried to Sheet No. 8				19.5	0.12	0.04	50.0	3	2	115.2	



MAINTENANCE OF TRAFFIC THROUGH PAVEMENT WIDENING - S.R. 39
Sta. 45+927 to Sta. 46+338

LEGEND

- Ⓐ — 100mm Asphalt Concrete
- Ⓑ — 152mm Aggregate Base
- Ⓒ — 152mm Subbase
- Ⓓ — Existing Guardrail, Type 5

PHASE 2 WORK

- 1.) Place temporary pavement markings, signs and raised pavement markers, removing any conflicting signs or pavement markings from previous phase. Use the same signs as phase 1 except as shown.
- 2.) Maintain two-way traffic via signal control on the existing and completed pavements.
- 3.) Complete the pavement widening as per the typical sections up to the 301 - Bituminous Aggregate Base surface for the right side of S.R. 39. Maintain the drives by using Item 410, Traffic Compacted Surface Type B, as directed by the Engineer.
- 4.) Plane existing pavement for S.R. 39, S.R. 515, and T.R. 403 as per the typical sections and plan details. Planing shall be closely followed by shoulder grading to promote pavement drainage. The Contractor shall not allow water to pond within the limits of the travelled lanes at any time during phase construction. Place temporary pavement markings as directed by the Engineer.
- 5.) Construct temporary pavement for the right side of S.R. 39 from Sta. 46+338 to Sta. 46+402.

ITEM 614 - TEMPORARY RAISED PAVEMENT MARKERS

PHASE 2	STATIONING			SPACING	TYPE A			REMARKS
	FROM	TO	SIDE	METER	W	Y	Y/Y	(LINE TYPE)
	46+080	46+150	RT.	6.0	13			SUPPLEMENT EDGE LINE
	46+110	46+150		3.0	14			SUPPLEMENT CHANNELIZING LINE
	46+185	46+235	RT.	6.0	8			SUPPLEMENT EDGE LINE
	46+185	46+226	℄	6.0		14		SUPPLEMENT CENTER LINE
	46+185	46+195		3.0	4			SUPPLEMENT CHANNELIZING LINE
Sub-total					39		14	
Totals Carried to Sheet No. 8					53			

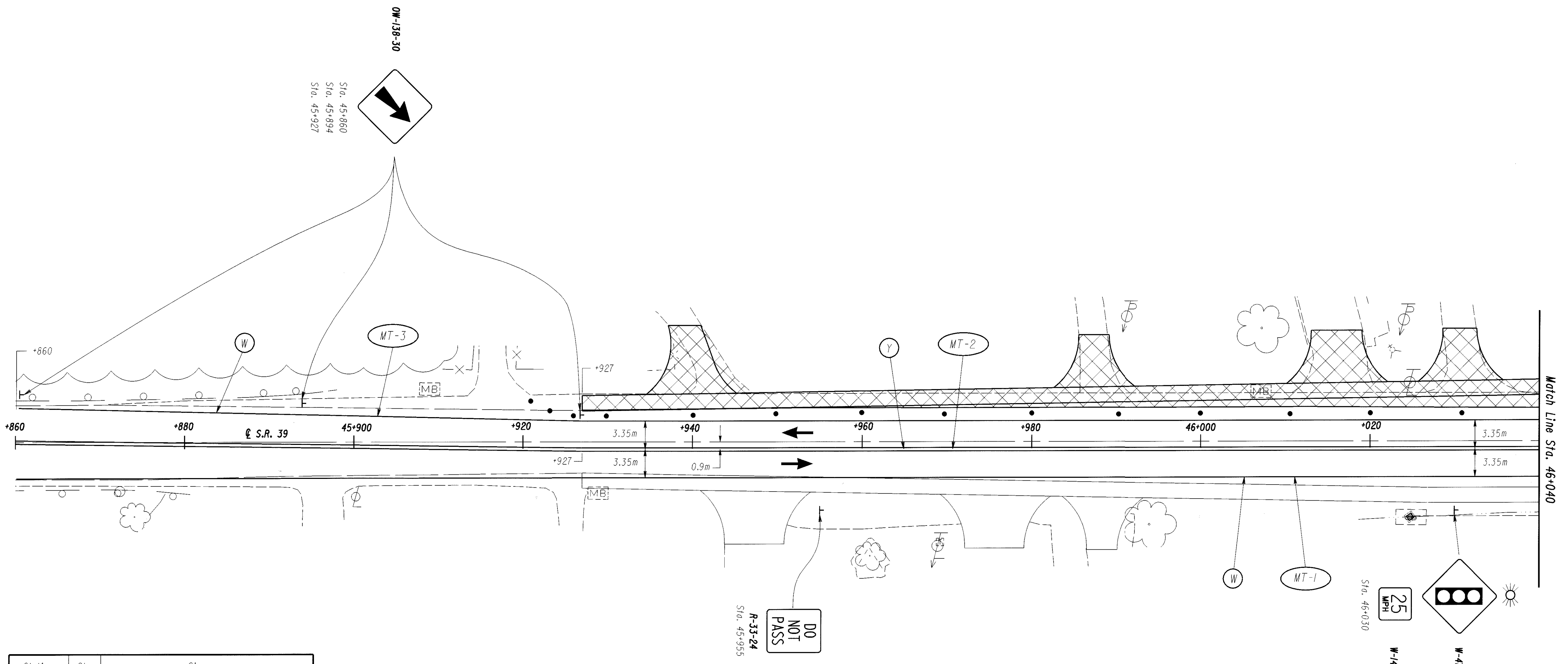
NOTE : SIDE is in Relation to Increasing Station.

CALCULATIONS :

Ⓓ-1) 64m x 1.8m = 115.2 Sq. Meter

PHASE 3 - MAINTENANCE of TRAFFIC

HOL-39-46.140

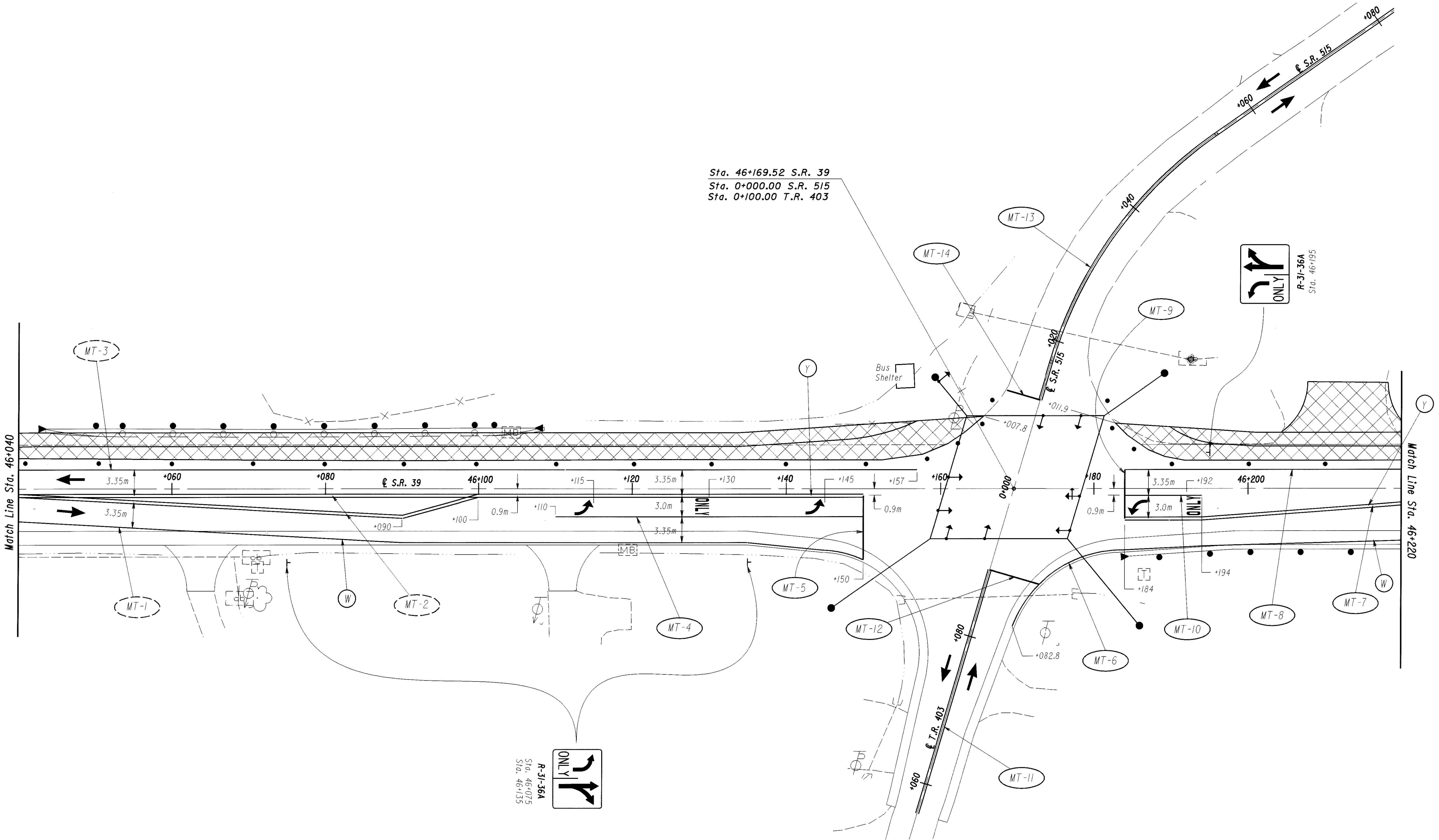


Station	Qty.	Sign
45+710	2	w/ Type A Warning Light OW-128-36 OW-143-24
45+558	2	w/ Type A Warning Light OW-128-36 OW-143-24
45+785	1	OC-39R-30

For Legend, See Sheet No. 10
For Quantities, See Sheet No. 21

PHASE 3 - MAINTENANCE OF TRAFFIC

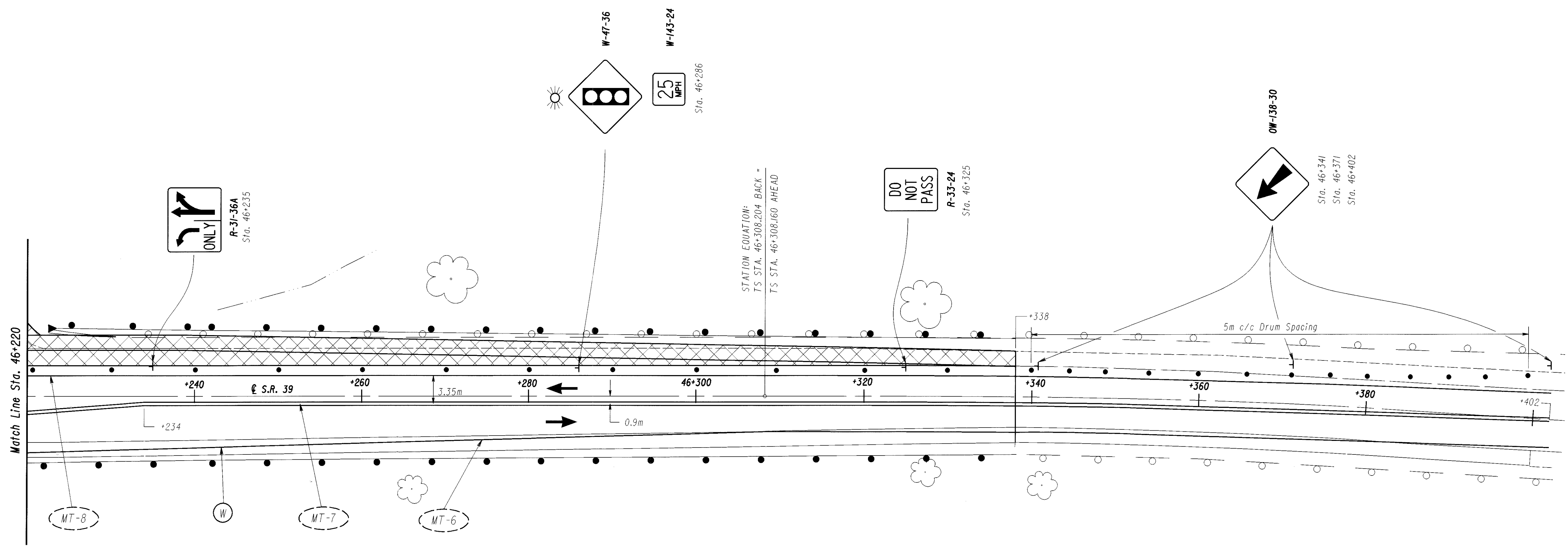
HOL - 39 - 46.140



For Legend, See Sheet No. 10
For Quantities, See Sheet No. 21

PHASE 3 - MAINTENANCE of TRAFFIC

HOL - 39 - 46.140

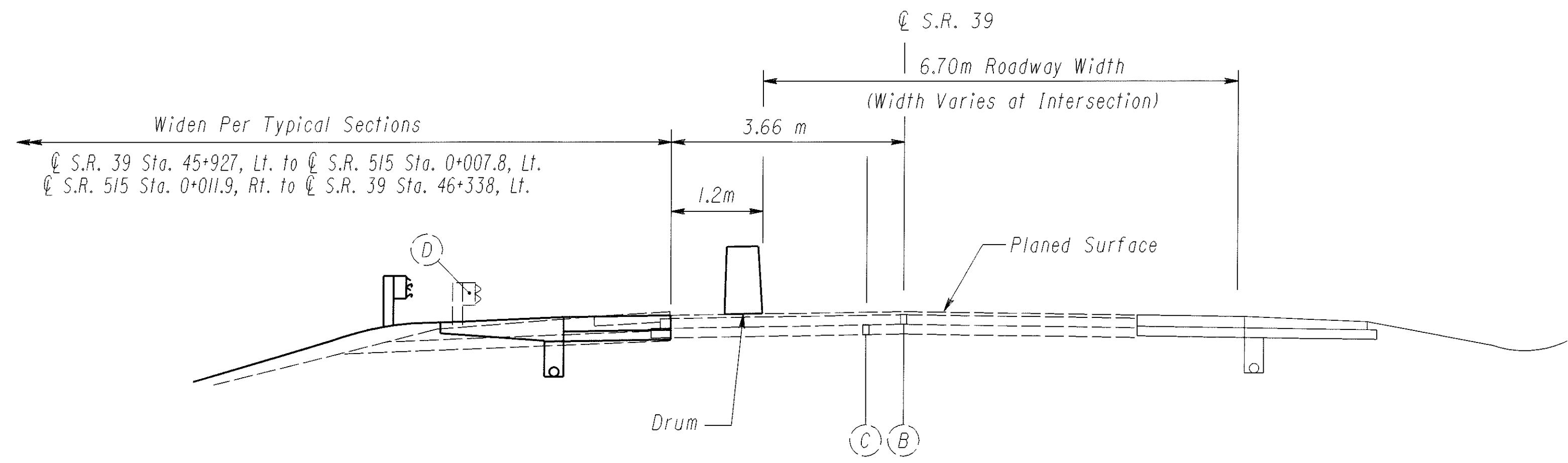


Station	Qty.	Sign
46+555	2	w/ Type A Warning Light OW-128-36 OW-143-24
46+708	2	w/ Type A Warning Light OW-128-36 OW-143-24
46+479	1	OC-39L-30

For Legend, See Sheet No. 10
For Quantities, See Sheet No. 21

PHASE 3 - MAINTENANCE OF TRAFFIC QUANTITIES

Reference	STATIONING				614						
	FROM	TO	SIDE	ROUTE	Temporary Stop Line, Class I	Temporary Edge Line, Class I	Temporary Center Line, Class I	Temporary Channelizing Line, Class I	Temporary Lane Arrow, Class I	Temporary Word on Pavement, 1800mm, Class I	
					METER	km	km	METER	EACH	EACH	
MT-1	45+860	46+150	RT.	39		0.29					
MT-2	45+860	46+150	℄	39			0.35				
MT-3	45+860	46+150	LT.	39		0.29					
MT-4	46+110	46+150	RT.	39				40.0			
MT-5	46+150		℄	39	8.60						
MT-6	0+082.8	46+402	RT.	39		0.24					
MT-7	46+184	46+402	℄	39			0.22				
MT-8	46+184	46+402	LT.	39		0.22					
MT-9	46+184		℄	39	6.40						
MT-10	46+184	46+194	LT.	39				10.0			
MT-11	0+089	0+056	℄	403			0.03				
MT-12	0+089			403	6.70						
MT-13	0+012	0+150	℄	515			0.14				
MT-14	0+012			515	4.50						
	46+115										
	46+130										
	46+145										
	46+186										
	46+192										
Totals Carried to Sheet No. 8					26.2	1.04	0.74	50.0	3	2	



MAINTENANCE OF TRAFFIC THROUGH PAVEMENT WIDENING - S.R. 39

Sta. 45+927 to Sta. 46+338

LEGEND

- ⓑ — 152mm Aggregate Base
- ⓒ — 152mm Subbase
- ⓓ — Existing Guardrail, Type 5

PHASE 3 WORK

- 1.) Place temporary pavement markings, signs, raised pavement markers and drums. Realign temporary signal heads and remove all conflicting pavement markings, temporary signs and TRPM's from previous phases.
- 2.) Maintain two-way traffic on the existing, temporary and completed pavement.
- 3.) Construct pavement widening as per the typical sections up to the existing planed pavement surface for S.R. 39 Sta. 45+927, Lt. side to S.R. 515 Sta. 0+007.8, Lt. side. Maintain S.R. 515 with drums and temporary pavement markings as directed by the Engineer.
- 4.) Construct pavement widening as per the typical sections up to the existing planed pavement surface for S.R. 515 Sta. 0+011.9, Rt. side to S.R. 39 Sta. 46+338, Lt. side. Maintain S.R. 515 with drums and temporary pavement markings as directed by the Engineer.
- 5.) Construct the proposed traffic signal system as per the plan, using LEO's and flaggers to maintain traffic. The temporary traffic signal system shall remain operational until the proposed signal is complete and tested.
- 6.) At this point S.R. 39 and T.R. 403 have been widened completely, the Contractor may place the intermediate course for S.R. 39 and T.R. 403. Place temporary pavement markings for S.R. 39 and T.R. 403 as detailed in the traffic control plan.

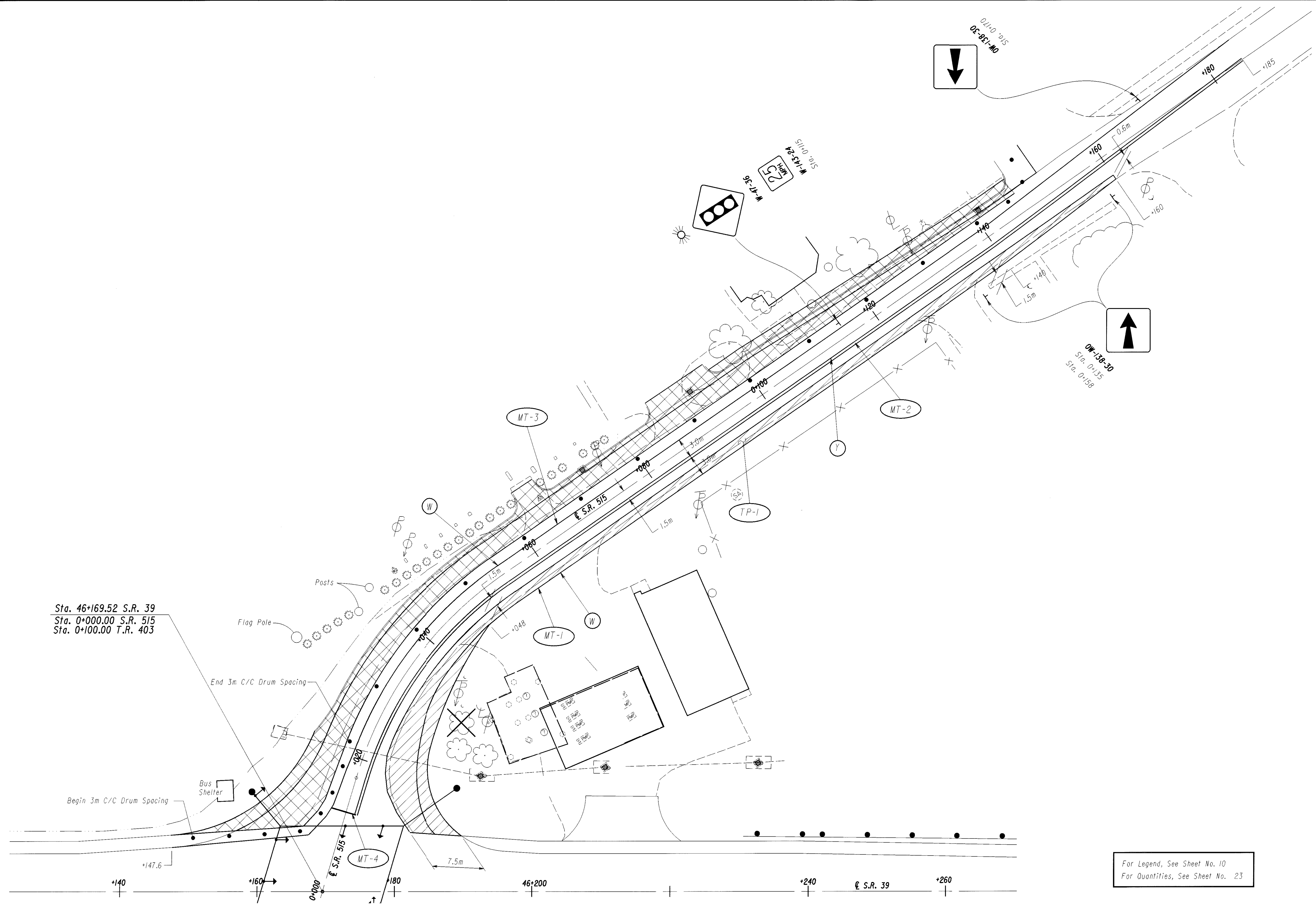
ITEM 614 - TEMPORARY RAISED PAVEMENT MARKERS

PHASE 3	STATIONING			SPACING	TYPE A			REMARKS
	FROM	TO	SIDE	METER	W	Y	Y/Y	(LINE TYPE)
	45+860	46+150	RT.	6.0	49			SUPPLEMENT EDGE LINE
	45+860	46+150	℄	6.0			98	SUPPLEMENT CENTER LINE
	46+040	46+150	RT.	6.0			22	SUPPLEMENT CENTER LINE
	45+860	46+157	LT.	6.0	49			SUPPLEMENT EDGE LINE
	46+110	46+150	---	3.0	14			SUPPLEMENT CHANNELIZING LINE
	46+184	46+402	RT.	6.0	38			SUPPLEMENT EDGE LINE
	46+184	46+402	℄	6.0			76	SUPPLEMENT CENTER LINE
	46+184	46+402	LT.	6.0	38			SUPPLEMENT EDGE LINE
	46+184	46+194	---	3.0	4			SUPPLEMENT CHANNELIZING LINE
Sub-total					192		196	
Totals Carried to Sheet No. 8					388			

NOTE : SIDE is in Relation to Increasing Station.

PHASE 4 - MAINTENANCE of TRAFFIC

HOL-39-46.140

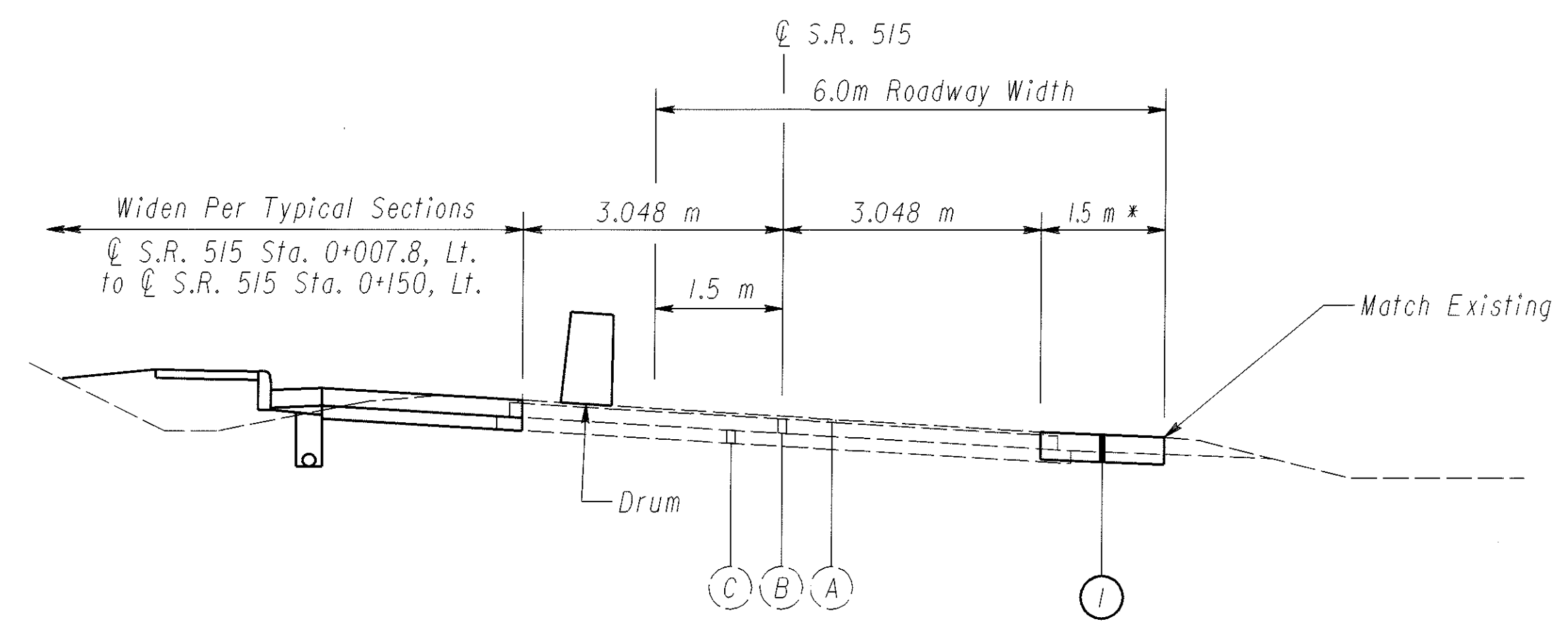


Sta. 46+169.52 S.R. 39
Sta. 0+000.00 S.R. 515
Sta. 0+100.00 T.R. 403

For Legend, See Sheet No. 10
For Quantities, See Sheet No. 23

PHASE 4 - MAINTENANCE OF TRAFFIC QUANTITIES

Reference	STATIONING			614			615			
	FROM	TO	SIDE	Temporary Stop Line, Class I	Temporary Edge Line, Class I	Temporary Center Line, Class I	Temporary Pavement, Class B			
				Meter	km	km	Sq. Meter			
MT-1	0+012	0+160	RT.		0.15					
MT-2	0+012	0+185	℄			0.17				
MT-3	46+147.6	0+185	LT.		0.20					
MT-4	0+012			3.7						
TP-1	0+011.9	0+160	RT.				333.2			
Totals Carried to Sheet No. 8				3.0	0.35	0.17	333.2			



MAINTENANCE OF TRAFFIC THROUGH PAVEMENT WIDENING - S.R. 515

Sta. 0+021.39 to Sta. 0+150

* Width Varies :
7.50m at Sta. 0+011.9 to 1.5m at Sta. 0+048

LEGEND

- ① — Item 615 Temporary Pavement, Class B
- Ⓐ — 100mm Asphalt Concrete
- Ⓑ — 152mm Aggregate Base
- Ⓒ — 152mm Subbase

ITEM 614 - TEMPORARY RAISED PAVEMENT MARKERS

PHASE 4	STATIONING			SPACING	TYPE A			REMARKS
	FROM	TO	SIDE	METER	W	Y	Y/Y	(LINE TYPE)
	0+012	0+185	℄	6.0			58	SUPPLEMENT CENTER LINE
0+012	0+160	RT.	6.0	26			SUPPLEMENT EDGE LINE	
0+012	0+185	LT.	6.0	30			SUPPLEMENT EDGE LINE	
Sub-total				56		58		
Totals Carried to Sheet No. 8				114				

NOTE : SIDE is in Relation to Increasing Station.

CALCULATIONS :

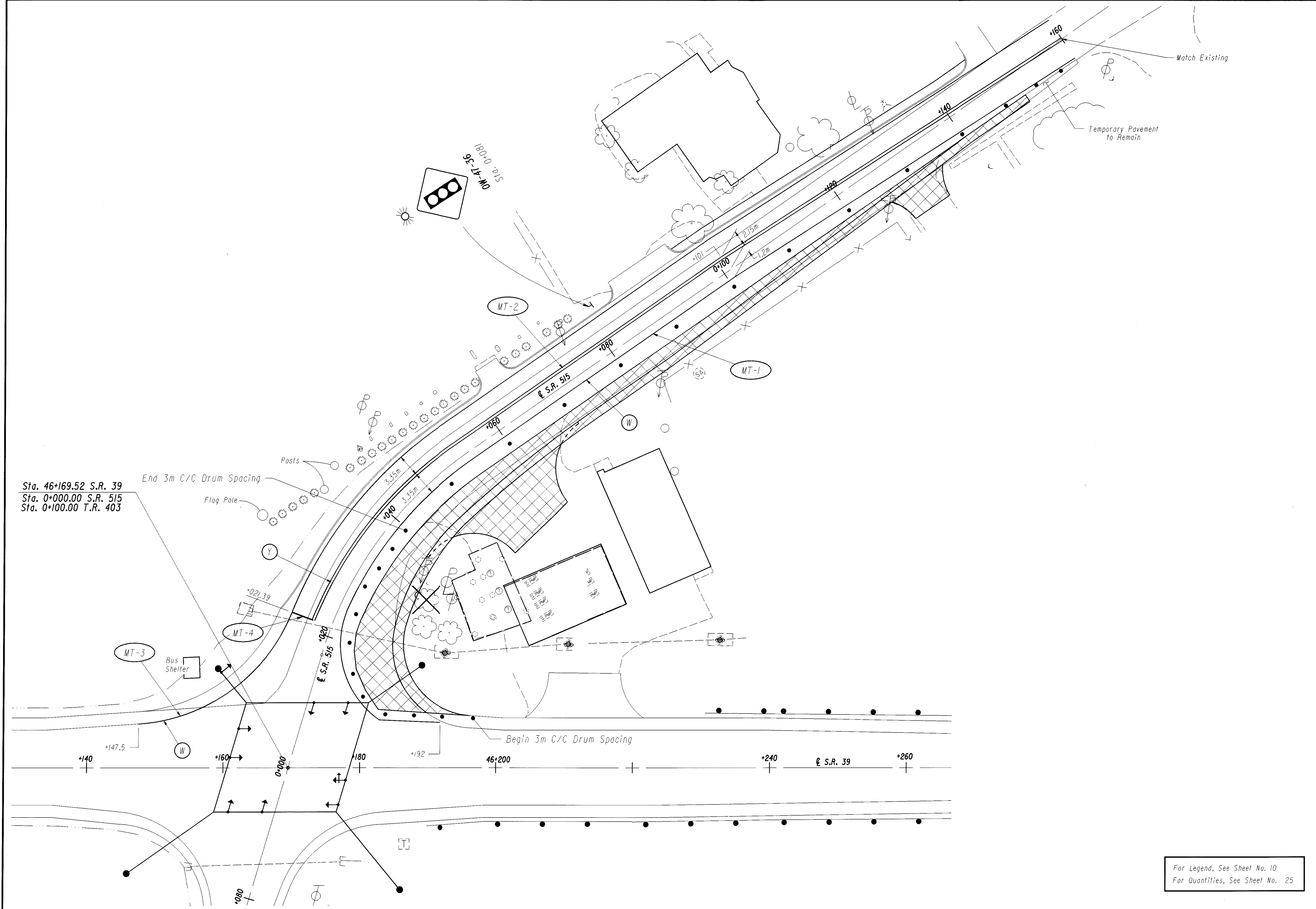
Ⓐ 36.7m x ((7.5m + 1.5m) ÷ 2) + 112m x (1.5m) = 333.2 Sq. Meter

PHASE 4 WORK

- 1.) Construct temporary pavement for the right side of S.R. 515, using traffic cones and flaggers to maintain traffic.
- 2.) Place temporary pavement markings, signs, raised pavement markers and drums and remove all conflicting pavement markings, temporary signs and TRPM's from previous phases.
- 3.) Maintain two-way traffic on the existing pavement and temporary pavement.
- 4.) Construct pavement widening as per the typical sections up to the existing planed pavement surface for S.R. 515 Sta. 0+007.8, Lt. side to Sta. 0+150, Lt. side. Maintain drives using Item 410, Traffic Compacted Surface Type B, as directed by the Engineer.

PHASE 5 - MAINTENANCE OF TRAFFIC

HOL-39-46.160



For Legend, See Sheet No. 10
For Quantities, See Sheet No. 25

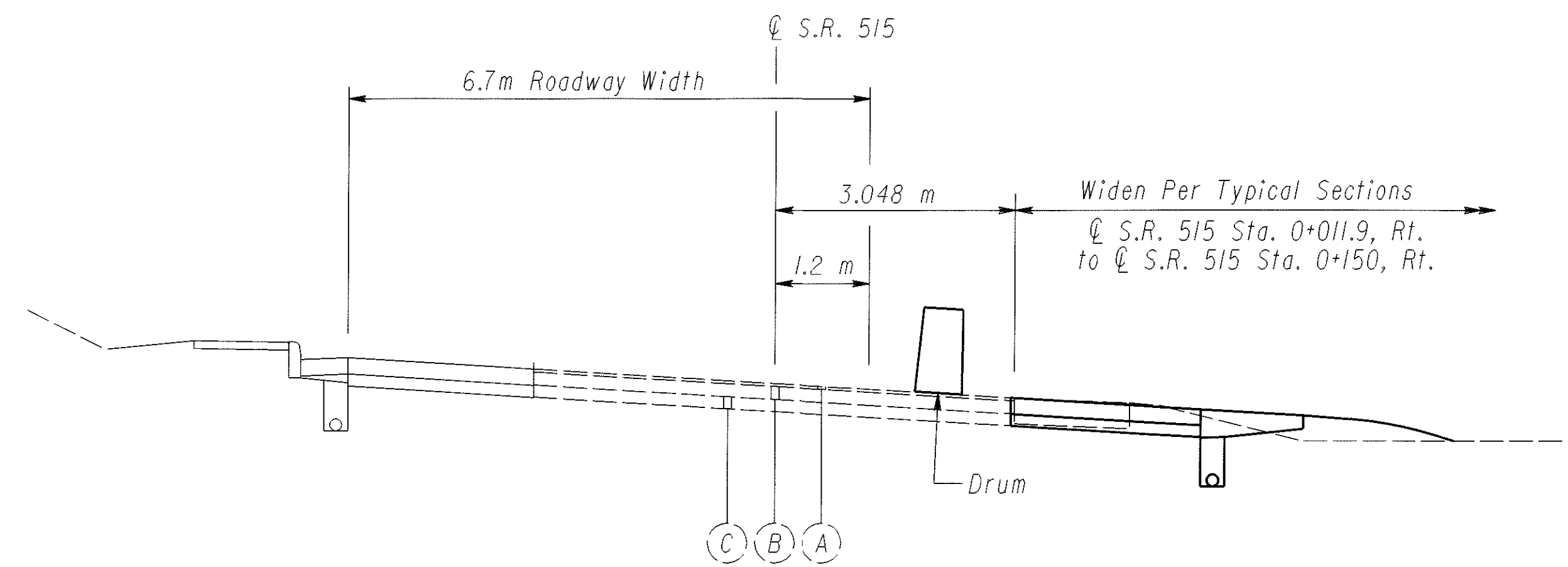
PHASE 5 - MAINTENANCE OF TRAFFIC QUANTITIES

Reference	STATIONING			614						
	FROM	TO	SIDE	Temporary Stop Line, Class I	Temporary Edge Line, Class I	Temporary Center Line, Class I				
	Meter	km	km							
MT-1	46+192	0+160	RT.		0.16					
MT-2	0+021.39	0+160	℄			0.13				
MT-3	46+147.5	0+160	LT.		0.17					
MT-4	0+021.39			3.4						
Totals Carried to Sheet No. 8				3.4	0.33	0.13				

ITEM 614 - TEMPORARY RAISED PAVEMENT MARKERS

PHASE 5	STATIONING			SPACING	TYPE A			REMARKS
	FROM	TO	SIDE	METER	W	Y	Y/Y	(LINE TYPE)
	0+021.39	0+160	℄	6.0			44	SUPPLEMENT CENTER LINE
	0+021.39	0+160	RT.	6.0	24			SUPPLEMENT EDGE LINE
	0+021.39	0+160	LT.	6.0	24			SUPPLEMENT EDGE LINE
Sub-total					48		44	
Totals Carried to Sheet No. 8					92			

NOTE : SIDE is in Relation to Increasing Station.



MAINTENANCE OF TRAFFIC THROUGH PAVEMENT WIDENING - S.R. 515

Sta. 0+024.39 to Sta. 0+150

LEGEND

- (A) — 100mm Asphalt Concrete
- (B) — 152mm Aggregate Base
- (C) — 152mm Subbase

PHASE 5 WORK

- 1.) Place temporary pavement markings, signs, raised pavement markers and drums, and remove all conflicting TRPM's, pavement markings and temporary signs from the previous phase.
- 2.) Maintain two-way traffic on the existing pavement and completed pavement.
- 3.) Construct pavement widening as per the typical sections up to the existing planned pavement surface for S.R. 515 Sta. 0+011.9, Rt. side to Sta. 0+150, Rt. side. Maintain drives using Item 410, Traffic Compacted Surface Type B, as directed by the Engineer.
- 4.) Upon completion of pavement widening for Phases 1-5, the Contractor shall complete pavement resurfacing, pavement markings, and sign installation for S.R. 39, S.R. 515 and T.R. 403.

SHEET NUMBER										ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	
							76									
															TRAFFIC SIGNALS	
							271			625	25400	271	METER	CONDUIT, 51 MM, 713.04		
							207			625	29000	207	METER	TRENCH		
							64			625	29600	64	METER	TRENCH IN PAVED AREA, TYPE B		
							7			625	30500	7	EACH	PULL BOX, 713.09, 450 MM		
							4			625	32000	4	EACH	GROUND ROD		
							271			SPECIAL	62536000	271	METER	PLASTIC CAUTION TAPE		77
							8			632	00301	8	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN		77
							1			632	00501	1	EACH	VEHICULAR SIGNAL HEAD, 5 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN		77
							9			632	25000	9	EACH	COVERING OF VEHICULAR SIGNAL HEAD		
							4			632	26001	4	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN		79
							8			632	26500	8	EACH	DETECTOR LOOP		
							116			632	30200	116	METER	MESSENGER WIRE, 7 STRAND, 9 MM DIAMETER WITH ACCESSORIES		
							199			632	40500	199	METER	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG		
							172			632	40700	172	METER	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG		
							4			632	64000	4	EACH	STRAIN POLE FOUNDATION		
							813			632	65200	813	METER	LOOP DETECTOR LEAD-IN CABLE		
							14			632	67200	14	METER	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG		
							47			632	69400	47	METER	SERVICE CABLE, 2 CONDUCTOR, NO. 8 AWG		
							1			632	70000	1	EACH	POWER SERVICE		
							4			632	82700	4	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 7		
							1			633	39200	1	EACH	CONTROLLER, TYPE 170E WITH MODEL 336 CABINET AND ACCESSORIES		
							4			633	70500	4	SQ METER	CONTROLLER WORK PAD		

GENERAL SUMMARY

HOL-39-46.140

ITEM 448 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER PLAN

Sta. 45+927 to Sta. 46+026.86 (Rt.) 99.86 m x 4.61 m x 0.032 m	=	14.73 cu. m
Sta. 45+927 to Sta. 46+026.86 (Lt.) 99.86 m x 4.49 m x 0.032 m	=	14.35 cu. m
Sta. 46+026.86 to Sta. 46+041.86 (Rt.) 15 m x 5.49 m x 0.032 m	=	2.64 cu. m
Sta. 46+026.86 to Sta. 46+041.86 (Lt.) 15 m x 5.37 m x 0.032 m	=	2.58 cu. m
Sta. 46+041.86 to Sta. 46+139.729 (Rt.) 97.87 m x 5.49 m x 0.032 m	=	17.19 cu. m
Sta. 46+041.86 to Sta. 46+134 (Lt.) 92.14 m x 5.49 m x 0.032 m	=	16.19 cu. m

INTERSECTION AREA

Sta. 46+139.729 to Sta. 46+196.180 (Includes T.R. 403) Area is CADD Generated, Area = 700.35 sq. m 700.35 sq. m x 0.032 m	=	22.41 cu. m
Sta. 46+134 to Sta. 46+201 (Includes to Sta. 0+054.365 of S.R. 515) Area is CADD Generated, Area = 1179.32 sq. m 1179.32 sq. m x 0.032 m	=	37.74 cu. m
Sta. 0+054.365 to Sta. 0+150 (S.R. 515) Area is CADD Generated, Area = 936.64 sq. m 936.64 sq. m x 0.032 m	=	29.97 cu. m
Sta. 46+196.80 to Sta. 46+223.81 (Rt.) 27.01 m x 5.49 m x 0.032 m	=	4.75 cu. m
Sta. 46+201 to Sta. 46+238.81 (Lt.) 37.81 m x 5.49 m x 0.032 m	=	6.64 cu. m

Station Equation = Sta. 46+308.204 (Back) =
Sta. 46+308.160 (Ahead)
Added 0.04 m to distance

Sta. 46+223.81 to Sta. 46+338 (Rt.) 114.23 m x 4.56 m x 0.032 m	=	16.67 cu. m
Sta. 46+238.81 to Sta. 46+338 (Lt.) 99.23 m x 4.55 m x 0.032 m	=	14.45 cu. m

Shoulders (All Shoulder Areas are CADD Generated)

Sta. 45+927 to Sta. 46+139.729 (Rt.) 382.67 sq. m x 0.032 m	=	12.25 cu. m
Sta. 45+927 to Sta. 46+134 (Lt.) 367.91 sq. m x 0.032 m	=	11.77 cu. m
Sta. 46+139.729 (Rt.) to Sta. 0+056 (T.R. 403) 67.12 sq. m x 0.032 m	=	2.15 cu. m
Sta. 0+056 (T.R. 403) to Sta. 46+196.180 (Rt.) 85.14 sq. m x 0.032 m	=	2.72 cu. m
Sta. 46+134 (Lt.) to Sta. 0+021.427 (S.R. 515) 75.18 sq. m x 0.032 m	=	2.41 cu. m
Sta. 0+021.427 to Sta. 0+150 (Lt. - S.R. 515) 84.84 sq. m x 0.032 m	=	2.71 cu. m
Sta. 0+054.365 to Sta. 0+150 (Rt. - S.R. 515) 113.47 sq. m x 0.032 m	=	3.64 cu. m
Sta. 0+054.365 to Sta. 46+201 (Lt.) 86.97 sq. m x 0.032 m	=	2.78 cu. m
Sta. 46+196.180 to Sta. 46+338 (Rt.) 256.82 sq. m x 0.032 m	=	8.22 cu. m
Sta. 46+201 to Sta. 46+338 (Lt.) 248.13 sq. m x 0.032 m	=	7.94 cu. m

TOTAL = 256.9 CU. M
(Use 257 cu. m)

ITEM 448 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22

Sta. 45+927 to Sta. 46+026.86 (Rt.) 99.86 m x 4.61 m x 0.045 m	=	20.72 cu. m
Sta. 45+927 to Sta. 46+026.86 (Lt.) 99.86 m x 4.49 m x 0.045 m	=	20.18 cu. m
Sta. 46+026.86 to Sta. 46+041.86 (Rt.) 15 m x 5.49 m x 0.045 m	=	3.71 cu. m
Sta. 46+026.86 to Sta. 46+041.86 (Lt.) 15 m x 5.37 m x 0.045 m	=	3.62 cu. m
Sta. 46+041.86 to Sta. 46+139.729 (Rt.) 97.87 m x 5.49 m x 0.045 m	=	24.18 cu. m
Sta. 46+041.86 to Sta. 46+134 (Lt.) 92.14 m x 5.49 m x 0.045 m	=	22.76 cu. m

INTERSECTION AREA

Sta. 46+139.729 to Sta. 46+196.180 (Includes T.R. 403) Area is CADD Generated, Area = 700.35 sq. m 700.35 sq. m x 0.045 m	=	31.52 cu. m
Sta. 46+134 to Sta. 46+201 (Includes to Sta. 0+054.365 of S.R. 515) Area is CADD Generated, Area = 1179.32 sq. m 1179.32 sq. m x 0.045 m	=	53.07 cu. m
Sta. 0+054.365 to Sta. 0+150 (S.R. 515) Area is CADD Generated, Area = 936.64 sq. m 936.64 sq. m x 0.045 m	=	42.15 cu. m
Sta. 46+196.80 to Sta. 46+223.81 (Rt.) 27.01 m x 5.49 m x 0.045 m	=	6.67 cu. m
Sta. 46+201 to Sta. 46+238.81 (Lt.) 37.81 m x 5.49 m x 0.045 m	=	9.34 cu. m

Station Equation = Sta. 46+308.204 (Back) =
Sta. 46+308.160 (Ahead)
Added 0.04 m to distance

Sta. 46+223.81 to Sta. 46+338 (Rt.) 114.23 m x 4.56 m x 0.045 m	=	23.44 cu. m
Sta. 46+238.81 to Sta. 46+338 (Lt.) 99.23 m x 4.55 m x 0.045 m	=	20.32 cu. m

Shoulders (All Shoulder Areas are CADD Generated)

Sta. 45+927 to Sta. 46+139.729 (Rt.) 382.67 sq. m x 0.045 m	=	17.22 cu. m
Sta. 45+927 to Sta. 46+134 (Lt.) 367.91 sq. m x 0.045 m	=	16.56 cu. m
Sta. 46+139.729 (Rt.) to Sta. 0+056 (T.R. 403) 67.12 sq. m x 0.045 m	=	3.02 cu. m
Sta. 0+056 (T.R. 403) to Sta. 46+196.180 (Rt.) 85.14 sq. m x 0.045 m	=	3.83 cu. m
Sta. 46+134 (Lt.) to Sta. 0+021.427 (S.R. 515) 75.18 sq. m x 0.045 m	=	3.38 cu. m
Sta. 0+021.427 to Sta. 0+150 (Lt. - S.R. 515) 84.84 sq. m x 0.045 m	=	3.82 cu. m
Sta. 0+054.365 to Sta. 0+150 (Rt. - S.R. 515) 113.47 sq. m x 0.045 m	=	5.11 cu. m
Sta. 0+054.365 to Sta. 46+201 (Lt.) 86.97 sq. m x 0.045 m	=	3.91 cu. m
Sta. 46+196.180 to Sta. 46+338 (Rt.) 256.82 sq. m x 0.045 m	=	11.56 cu. m
Sta. 46+201 to Sta. 46+338 (Lt.) 248.13 sq. m x 0.045 m	=	11.17 cu. m

TOTAL = 361.26 CU. M
(Use 361 cu. m)

ITEM 301 - BITUMINOUS AGGREGATE BASE, PG64-22

* All Areas for Item 301 are CADD Generated.

Sta. 45+927 to Sta. 46+026.86 (Rt.) 91.00 sq. m x .205 m	=	18.66 cu. m
Sta. 45+927 to Sta. 46+041.86 (Lt.) 104.940 sq. m x .205 m	=	21.51 cu. m
Sta. 46+026.86 to Sta. 46+139.729 (Rt.) 204.46 sq. m x .205 m	=	41.91 cu. m
Sta. 46+041.86 to Sta. 46+134 (Lt.) 169.56 sq. m x .205 m	=	34.76 cu. m

INTERSECTION AREA

* Quantities Though Intersection are from Cutline to the Outer-edge of the Shoulder.

Sta. 46+139.729 (Rt.) to Sta. 0+056 (T.R. 403) 165.76 sq. m x .205 m	=	33.98 cu. m
Sta. 0+056 (T.R. 403) to Sta. 46+196.180 (Rt.) 161.96 sq. m x .205 m	=	33.20 cu. m
Sta. 46+134 (Lt.) to Sta. 0+021.427 (S.R. 515) 221.76 sq. m x .205 m	=	45.46 cu. m
Sta. 0+021.427 to Sta. 0+150 (Lt. - S.R. 515) 279.09 sq. m x .205 m	=	57.21 cu. m
Sta. 0+021.427 to Sta. 0+150 (Rt. - S.R. 515) 233.39 sq. m x .205 m	=	47.84 cu. m
Sta. 0+021.427 (S.R. 515) to Sta. 46+201 (Lt.) 303.46 sq. m x .205 m	=	62.21 cu. m
Sta. 46+196.180 to Sta. 46+223.81 (Rt.) 50.06 sq. m x .205 m	=	10.26 cu. m
Sta. 46+201 to Sta. 46+238.81 (Lt.) 69.64 sq. m x .205 m	=	14.28 cu. m
Sta. 46+223.81 to Sta. 46+338 (Rt.) 108.34 sq. m x .205 m	=	22.21 cu. m
Sta. 46+238.81 to Sta. 46+338 (Lt.) 92.15 sq. m x .205 m	=	18.89 cu. m

Shoulders Through Mainline

Sta. 45+927 to Sta. 46+026.86 (Rt.) 189.86 sq. m x .205 m	=	38.92 cu. m
Sta. 45+927 to Sta. 46+041.86 (Lt.) 218.72 sq. m x .205 m	=	44.84 cu. m
Sta. 46+026.86 to Sta. 46+139.729 (Rt.) 214.42 sq. m x .205 m	=	43.96 cu. m
Sta. 46+041.86 to Sta. 46+134 (Lt.) 174.90 sq. m x .205 m	=	35.85 cu. m
Sta. 46+196.180 to Sta. 46+223.81 (Rt.) 52.44 sq. m x .205 m	=	10.75 cu. m
Sta. 46+201 to Sta. 46+238.81 (Lt.) 71.86 sq. m x .205 m	=	14.73 cu. m
Sta. 46+223.81 to Sta. 46+338 (Rt.) 218.66 sq. m x .205 m	=	44.83 cu. m
Sta. 46+238.81 to Sta. 46+338 (Lt.) 189.93 sq. m x .205 m	=	38.94 cu. m

TOTAL = 735.2 CU. M
(Use 735 cu. m)

ITEM 304 - AGGREGATE BASE

* All Areas for Item 304 are CADD Generated.

Sta. 45+927 to Sta. 46+026.86 (Rt.) 91.00 sq. m x .150 m	=	13.65 cu. m
Sta. 45+927 to Sta. 46+041.86 (Lt.) 104.940 sq. m x .150 m	=	15.74 cu. m
Sta. 46+026.86 to Sta. 46+139.729 (Rt.) 204.46 sq. m x .150 m	=	30.67 cu. m
Sta. 46+041.86 to Sta. 46+134 (Lt.) 169.56 sq. m x .150 m	=	25.43 cu. m

INTERSECTION AREA

* Quantities Though Intersection are from Cutline to the Outer-edge of the Shoulder.

Sta. 46+139.729 (Rt.) to Sta. 0+056 (T.R. 403) 172.60 sq. m x .150 m	=	25.89 cu. m
Sta. 0+056 (T.R. 403) to Sta. 46+196.180 (Rt.) 170.69 sq. m x .150 m	=	25.60 cu. m
Sta. 46+134 (Lt.) to Sta. 0+021.427 (S.R. 515) 227.85 sq. m x .150 m	=	34.18 cu. m
Sta. 0+021.427 to Sta. 0+150 (Lt. - S.R. 515) 337.90 sq. m x .150 m	=	50.69 cu. m
Sta. 0+021.427 to Sta. 0+150 (Rt. - S.R. 515) 247.76 sq. m x .150 m	=	37.16 cu. m
Sta. 0+021.427 (S.R. 515) to Sta. 46+201 (Lt.) 308.97 sq. m x .150 m	=	46.35 cu. m

Sta. 46+196.180 to Sta. 46+223.81 (Rt.) 50.06 sq. m x .150 m	=	7.51 cu. m
Sta. 46+201 to Sta. 46+238.81 (Lt.) 69.64 sq. m x .150 m	=	10.45 cu. m
Sta. 46+223.81 to Sta. 46+338 (Rt.) 108.34 sq. m x .150 m	=	16.25 cu. m
Sta. 46+238.81 to Sta. 46+338 (Lt.) 92.15 sq. m x .150 m	=	13.82 cu. m

Shoulders Through Mainline

Sta. 45+927 to Sta. 46+026.86 (Rt.) 204.85 sq. m x .150 m	=	30.73 cu. m
Sta. 45+927 to Sta. 46+041.86 (Lt.) 235.97 sq. m x .150 m	=	35.40 cu. m
Sta. 46+026.86 to Sta. 46+139.729 (Rt.) 231.35 sq. m x .150 m	=	34.70 cu. m
Sta. 46+041.86 to Sta. 46+134 (Lt.) 188.70 sq. m x .150 m	=	28.31 cu. m
Sta. 46+196.180 to Sta. 46+223.81 (Rt.) 56.58 sq. m x .150 m	=	8.49 cu. m
Sta. 46+201 to Sta. 46+238.81 (Lt.) 77.54 sq. m x .150 m	=	11.63 cu. m
Sta. 46+223.81 to Sta. 46+338 (Rt.) 235.92 sq. m x .150 m	=	35.39 cu. m
Sta. 46+238.81 to Sta. 46+338 (Lt.) 204.93 sq. m x .150 m	=	30.74 cu. m

TOTAL = 568.78 CU. M
(Use 569 cu. m)

ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE

Sta. 45+927 to Sta. 46+026.86 (Rt.) 99.86 m x 4.61 m x 0.18	=	82.86 L
Sta. 45+927 to Sta. 46+026.86 (Lt.) 99.86 m x 4.49 m x 0.18	=	80.71 L
Sta. 46+026.86 to Sta. 46+041.86 (Rt.) 15 m x 5.49 m x 0.18	=	14.82 L
Sta. 46+026.86 to Sta. 46+041.86 (Lt.) 15 m x 5.37 m x 0.18	=	14.50 L
Sta. 46+041.86 to Sta. 46+139.729 (Rt.) 97.87 m x 5.49 m x 0.18	=	96.72 L
Sta. 46+041.86 to Sta. 46+134 (Lt.) 92.14 m x 5.49 m x 0.18	=	91.05 L

INTERSECTION AREA

Sta. 46+139.729 to Sta. 46+196.180 (Includes T.R. 403) Area is CADD Generated, Area = 700.35 sq. m 700.35 sq. m x 0.18	=	126.06 L
Sta. 46+134 to Sta. 46+201 (Includes to Sta. 0+054.365 of S.R. 515) Area is CADD Generated, Area = 1179.32 sq. m 1179.32 sq. m x 0.18	=	212.28 L
Sta. 0+054.365 to Sta. 0+150 (S.R. 515) Area is CADD Generated, Area = 936.64 sq. m 936.64 sq. m x 0.18	=	168.60 L

Sta. 46+196.80 to Sta. 46+223.81 (Rt.) 27.01 m x 5.49 m x 0.18	=	26.69 L
Sta. 46+201 to Sta. 46+238.81 (Lt.) 37.81 m x 5.49 m x 0.18	=	37.36 L

Station Equation = Sta. 46+308.204 (Back) =
Sta. 46+308.160 (Ahead)
Added 0.04 m to distance

Sta. 46+223.81 to Sta. 46+338 (Rt.) 114.23 m x 4.56 m x 0.18	=	93.76 L
Sta. 46+238.81 to Sta. 46+338 (Lt.) 99.23 m x 4.55 m x 0.18	=	81.27 L

Shoulders (All Shoulder Areas are CADD Generated)

Sta. 45+927 to Sta. 46+139.729 (Rt.) 382.67 sq. m x 0.18	=	68.88 L
Sta. 45+927 to Sta. 46+134 (Lt.) 367.91 sq. m x 0.18	=	66.22 L
Sta. 46+139.729 (Rt.) to Sta. 0+056 (T.R. 403) 67.12 sq. m x 0.18	=	12.08 L
Sta. 0+056 (T.R. 403) to Sta. 46+196.180 (Rt.) 85.14 sq. m x 0.18	=	15.33 L
Sta. 46+134 (Lt.) to Sta. 0+021.427 (S.R. 515) 75.18 sq. m x 0.18	=	13.53 L
Sta. 0+021.427 to Sta. 0+150 (Lt. - S.R. 515) 84.84 sq. m x 0.18	=	15.27 L
Sta. 0+054.365 to Sta. 0+150 (Rt. - S.R. 515) 113.47 sq. m x 0.18	=	20.42 L
Sta. 0+054.365 to Sta. 46+201 (Lt.) 86.97 sq. m x 0.18	=	15.65 L
Sta. 46+196.180 to Sta. 46+338 (Rt.) 256.82 sq. m x 0.18	=	46.23 L
Sta. 46+201 to Sta. 46+338 (Lt.) 248.13 sq. m x 0.18	=	44.66 L

TOTAL = 1444.95 L
(Use 1445 L)

ITEM 408 - BITUMINOUS PRIME COAT

* All Areas for Item 408 are CADD Generated.

Sta. 45+927 to Sta. 46+026.86 (Rt.) 91.00 sq. m x 1.8	=	163.80 L
Sta. 45+927 to Sta. 46+041.86 (Lt.) 104.940 sq. m x 1.8	=	188.89 L
Sta. 46+026.86 to Sta. 46+139.729 (Rt.) 204.46 sq. m x 1.8	=	368.03 L
Sta. 46+041.86 to Sta. 46+134 (Lt.) 169.56 sq. m x 1.8	=	305.21 L

INTERSECTION AREA

* Quantities Though Intersection are from Cutline to the Outer-edge of the Shoulder.

Sta. 46+139.729 (Rt.) to Sta. 0+056 (T.R. 403) 165.76 sq. m x 1.8	=	298.37 L
Sta. 0+056 (T.R. 403) to Sta. 46+196.180 (Rt.) 161.96 sq. m x 1.8	=	291.53 L
Sta. 46+134 (Lt.) to Sta. 0+021.427 (S.R. 515) 221.76 sq. m x 1.8	=	399.17 L
Sta. 0+021.427 to Sta. 0+150 (Lt. - S.R. 515) 279.09 sq. m x 1.8	=	502.36 L
Sta. 0+021.427 to Sta. 0+150 (Rt. - S.R. 515) 233.39 sq. m x 1.8	=	420.10 L
Sta. 0+021.427 (S.R. 515) to Sta. 46+201 (Lt.) 303.46 sq. m x 1.8	=	546.23 L

Sta. 46+196.180 to Sta. 46+223.81 (Rt.) 50.06 sq. m x 1.8	=	90.11 L
Sta. 46+201 to Sta. 46+238.81 (Lt.) 69.64 sq. m x 1.8	=	125.35 L
Sta. 46+223.81 to Sta. 46+338 (Rt.) 108.34 sq. m x 1.8	=	195.01 L
Sta. 46+238.81 to Sta. 46+338 (Lt.) 92.15 sq. m x 1.8	=	165.87 L

Shoulders Through Mainline

Sta. 45+927 to Sta. 46+026.86 (Rt.) 189.86 sq. m x 1.8	=	341.75 L
Sta. 45+927 to Sta. 46+041.86 (Lt.) 218.72 sq. m x 1.8	=	393.70 L
Sta. 46+026.86 to Sta. 46+139.729 (Rt.) 214.42 sq. m x 1.8	=	385.96 L
Sta. 46+041.86 to Sta. 46+134 (Lt.) 174.90 sq. m x 1.8	=	314.82 L
Sta. 46+196.180 to Sta. 46+223.81 (Rt.) 52.44 sq. m x 1.8	=	94.39 L
Sta. 46+201 to Sta. 46+238.81 (Lt.) 71.86 sq. m x 1.8	=	129.35 L
Sta. 46+223.81 to Sta. 46+338 (Rt.) 218.66 sq. m x 1.8	=	393.59 L
Sta. 46+238.81 to Sta. 46+338 (Lt.) 189.93 sq. m x 1.8	=	341.87 L

TOTAL = 6455.46 L
(Use 6455 L)

ITEM 203 - SUBGRADE COMPACTION

* All Areas for Item 203 are CADD Generated.

Sta. 45+927 to Sta. 46+026.86 (Rt.) 91.00 sq. m	=	91.00 sq. m
Sta. 45+927 to Sta. 46+041.86 (Lt.) 104.94 sq. m	=	104.94 sq. m
Sta. 46+026.86 to Sta. 46+139.729 (Rt.) 204.46 sq. m	=	204.46 sq. m
Sta. 46+041.86 to Sta. 46+134 (Lt.) 169.56 sq. m	=	169.56 sq. m

INTERSECTION AREA

* Quantities Though Intersection are from Cutline to the Outer-edge of the Shoulder.

Sta. 46+139.729 (Rt.) to Sta. 0+056 (T.R. 403) 172.60 sq. m	=	172.60 sq. m
Sta. 0+056 (T.R. 403) to Sta. 46+196.180 (Rt.) 170.69 sq. m	=	170.69 sq. m
Sta. 46+134 (Lt.) to Sta. 0+021.427 (S.R. 515) 227.85 sq. m	=	227.85 sq. m
Sta. 0+021.427 to Sta. 0+150.00 (S.R. 515) 337.90 sq. m	=	337.90 sq. m
Sta. 0+021.427 to Sta. 0+150.00 (S.R. 515) 247.76 sq. m	=	247.76 sq. m
Sta. 0+021.427 (S.R. 515) to Sta. 46+201 (Lt.) 308.97 sq. m	=	308.97 sq. m

Sta. 46+196.180 to Sta. 46+223.81 (Rt.) 50.06 sq. m	=	50.06 sq. m
Sta. 46+201 to Sta. 46+238.81 (Lt.) 69.64 sq. m	=	69.64 sq. m
Sta. 46+223.81 to Sta. 46+338 (Rt.) 108.34 sq. m	=	108.34 sq. m
Sta. 46+238.81 to Sta. 46+338 (Lt.) 92.15 sq. m	=	92.15 sq. m

Shoulders Through Mainline

Sta. 45+927 to Sta. 46+026.86 (Rt.) 204.85 sq. m	=	204.85 sq. m
Sta. 45+927 to Sta. 46+041.86 (Lt.) 235.97 sq. m	=	235.97 sq. m
Sta. 46+026.86 to Sta. 46+139.729 (Rt.) 231.35 sq. m	=	231.35 sq. m
Sta. 46+041.86 to Sta. 46+134 (Lt.) 188.70 sq. m	=	188.70 sq. m
Sta. 46+196.180 to Sta. 46+223.81 (Rt.) 56.58 sq. m	=	56.58 sq. m
Sta. 46+201 to Sta. 46+238.81 (Lt.) 77.54 sq. m	=	77.54 sq. m
Sta. 46+223.81 to Sta. 46+338 (Rt.) 235.92 sq. m	=	235.92 sq. m
Sta. 46+238.81 to Sta. 46+338 (Lt.) 204.93 sq. m	=	204.93 sq. m

TOTAL = 3791.76 SQ. M
(Use 3792 sq. m)

ITEM 254 - PAVEMENT PLANING BITUMINOUS (77mm NOMINAL DEPTH)

S.R. 39 - Sta. 45+927 to Sta. 46+338 411 m x 7.32 m	=	3008.5 sq. m
T.R. 403 - Sta. 0+056 to Sta. 0+094.280 CADD AREA = 293.8 sq. m	=	293.8 sq. m
S.R. 515 - Sta. 0+025 to Sta. 0+150 CADD AREA = 920.5 sq. m	=	920.5 sq. m

TOTAL = 4222.8 SQ. M
(Use 4223 SQ. M)

ITEM 407 - TACK COAT

Sta. 45+927 to Sta. 46+139.729 (Rt.) 212.73 m x 3.66 m x .34	=	264.72 L
Sta. 45+927 to Sta. 46+134 (Lt.) 207 m x 3.66 m x .34	=	257.59 L
Sta. 46+139.729 to Sta. 46+196.18 (Rt.) - Includes T.R. 403 Cadd Generated Area = 535.37 sq. m 535.37 sq. m x .34	=	182.03 L
Sta. 46+134 to Sta. 46+201 (Lt.) - Includes S.R. 515 Cadd Generated Area = 1455.37 sq. m 1455.37 sq. m x .34	=	494.83 L

Station Equation = Sta. 46+308.204 (Back) =
Sta. 46+308.160 (Ahead)
Added 0.04 m to distance

Sta. 46+196.18 to Sta. 46+338 (Rt.) 141.86 m x 3.66 m x .34	=	176.53 L
Sta. 46+201 to Sta. 46+338 (Lt.) 137.04 m x 3.66 m x .34	=	170.53 L

TOTAL = 1546.23 L
(Use 1546 L)

ITEM 605 - SHALLOW PIPE UNDERDRAIN

1-UD Sta. 45+950 to Sta. 46+125 (LT.) = 175.00 m	
2-UD Sta. 46+024.860 to Sta. 46+125 (RT.) = 100.14 m	
3-UD Sta. 46+201 to Sta. 46+338 (LT.) = 137.00 m	
4-UD Sta. 46+196.180 to Sta. 46+338 (RT.) = 141.82 m	

TOTAL = 553.96 m.
(Use 554 m)

ITEM 830 - CONCRETE CURB, TYPE 6

Sta. 0+021.427 to Sta. 0+062.124 (S.R. 51) CADD Measured Length	=	45.27 m
Sta. 0+065.802 to Sta. 0+084.815 (S.R. 515) CADD Measured Length	=	20.16 m
Sta. 0+090.680 to Sta. 0+101.527 (S.R. 515) CADD Measured Length	=	12.06 m
Sta. 0+104.928 to Sta. 0+144.00 (S.R. 515) CADD Measured Length	=	39.66 m

TOTAL = 117.15 m.
(Use 117 m)

ITEM 448 - ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 PG64-22 (WEDGE COURSE)

S.R. 515 - Sta. 0+005.72 to Sta. 0+025 CADD Measured Area = 229.8 sq. m 229.8 sq. m x 0.04 (Avg. depth)	=	9.19 cu. m
---	---	------------

TOTAL = 9.19 CU. M
(Use 9 cu. m)

Item 604 - Monument Box Adjusted to Grade ----- 2 Each

Location of Reference Monuments Along & S.R. 39 - Metric (English)	
P.O.T.	Sta. 46+024.802 (Sta. 1510+00.00)
T.S.	Sta. 46+308.204 (Sta. 1519+29.80)

ITEM 608 - CONCRETE WALK

1-W Sta. 0+104.90 to Sta. 0+146.55 (LT., S.R. 515) CADD Measured Area	=	74.09 sq. m
2-W Sta. 46+158.90 (LT.) 2.17 m x 1.22 m	=	2.65 sq. m
3-W Sta. 46+146.05 (RT.) 7.69 m x 1.22 m	=	9.38 sq. m
4-W Sta. 0+084.13 (RT. - T.R. 403) 13.60 m x 1.22 m	=	16.59 sq. m
5-W Sta. 46+187.17 (LT.) 2.07 m x 1.22 m	=	2.53 sq. m

TOTAL = 105.24 sq. m.
(Use 105 sq. m)

ITEM 608 - CONCRETE STEPS

4-W 1.22 m x 6 steps	=	7.32 m
TOTAL	=	7.32 m

(Use 7 m)

SHEET NO.	EARTHWORK & SEEDING		
	203		870
	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	EMBANKMENT	SEEDING & MULCHING
	CU. METER	CU. METER	SQ. METER
40	59	0	217
41	86	0	244
42	235	0	392
43	161	3	335
44	129	64	499
45	123	74	359
46	132	7	276
47	196	14	386
48	102	27	177
49	80	75	450
50	56	45	243
51	51	58	327
52	45	59	329
53	41	22	170
54	35	7	100
55	9	1	24
56	60	9	214
57	32	15	98
58	108	51	234
59	76	43	200
60	43	21	123
61	18	0	43
TOTAL CARRIED TO GENERAL SUMMARY	1877	595	5440

Totals Carried to General Summary

CALCULATED
CCS
CHECKED
SKW

CALCULATIONS

HOL - 39 - 46.140

ESTIMATED QUANTITIES

REF. NO.	PLAN SHEET NO.	STATION TO STATION	SIDE	ITEM 202					ITEM 638	
				WALK REMOVED	PIPE REMOVED	CATCH BASIN REMOVED	REMOVAL MISC. CONCRETE PAD	CURB REMOVED	FIRE HYDRANT REMOVED & RESET	
				SQ. METER	METER	EACH	SQ. METER	METER	EACH	
4R	38	0+105.17 to 0+146.55 S.R. 515	LT.	68.37					41	
5R	36 & 38	0+037.40 to 0+141.00 S.R. 515	LT.		103.6	3				
6R	35	46+024.86 to 46+071.04 S.R. 39	RT.		45.44	2				
7R	36	0+019.227 S.R. 515	LT.				3.6			
8R	34	46+894.470 S.R. 39	LT.							1
TOTALS - Carried to General Summary				68.37	149.04	5	3.6	41	1	

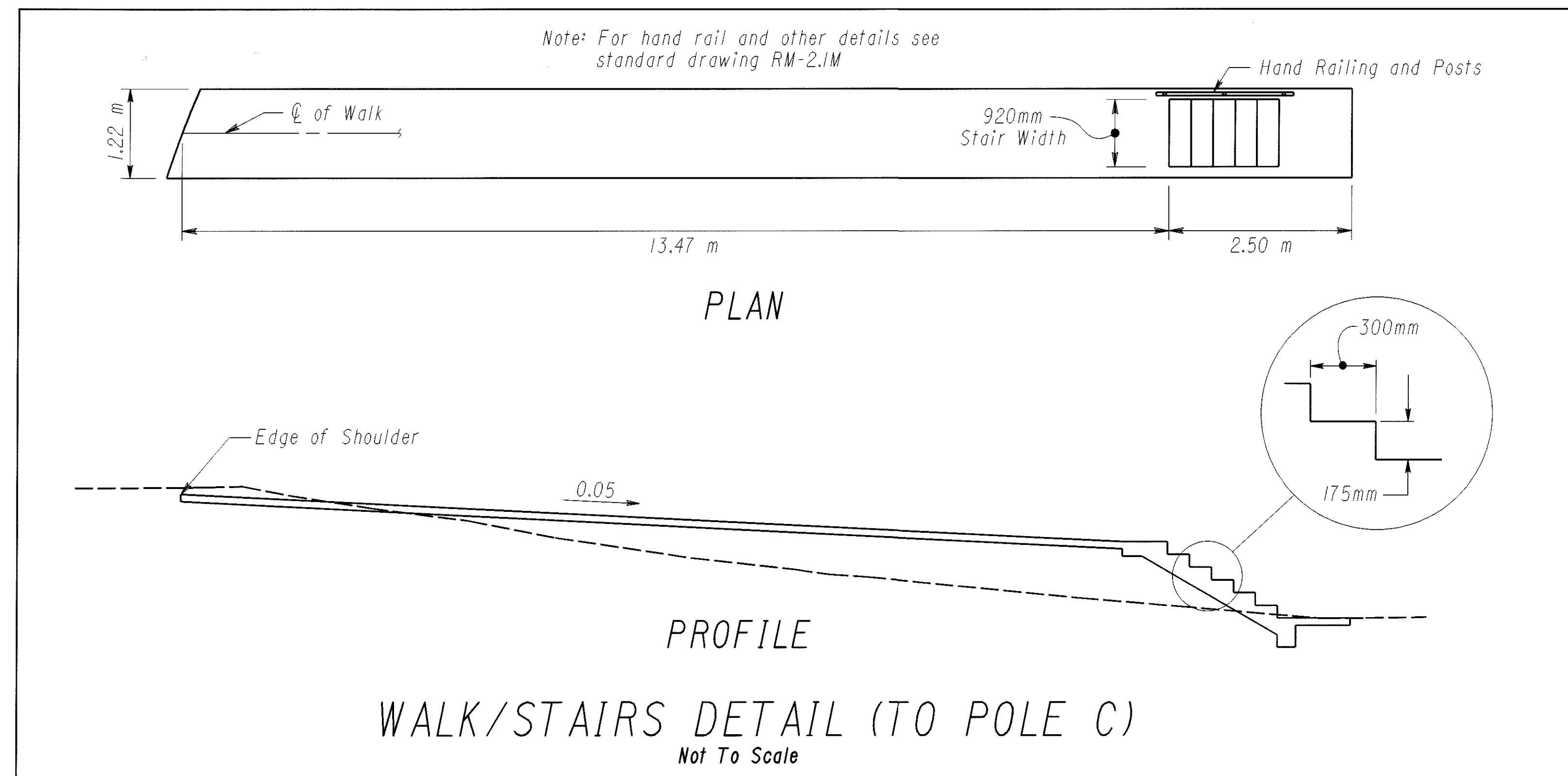
DRIVE QUANTITIES

*See Hatched Area Of Driveways

REF. NO.	PLAN SHEET NO.	STATION	SIDE	203	304	448	448	408	202	203
				EXCAVATION 227 MM AVERAGE DEPTH	AGGREGATE BASE	ASPHALT CONCRETE SURFACE COURSE, PG64-22, (DRIVEWAYS)	ASPHALT CONCRETE INTERMEDIATE COURSE, PG64-22, (DRIVEWAYS)	BITUMINOUS PRIME COAT, APPLIED RATE @ 1.8 L/SQ. M.	*PAVEMENT REMOVED	*EMBANKMENT 305 MM AVERAGE DEPTH
				CU. METER	CU. METER	CU. METER	CU. METER	LITERS	SQ. METER	CU. METER
1-DR	34	45+944.606	LT.	4.59	3.03	0.65	0.95	36.4	4.6	1.40
2-DR	34	45+947.300	RT.	5.97	3.95	0.84	1.18	47.3		
3-DR	35	45+975.600	RT.	11.03	7.29	1.56	2.19	87.5	10.2	3.11
4-DR	35	45+987.300	LT.	3.81	2.52	0.54	0.76	30.2		
5-DR	35	45+987.300	RT.	2.45	1.62	0.35	0.49	19.4		
6-DR	35	46+016.000	LT.	9.62	6.36	1.36	1.91	76.3		
7-DR	35	46+032.321	LT.	9.38	6.20	1.32	1.86	74.3		
8-DR	35	46+063.409	RT.	5.11	3.38	0.72	1.01	40.5		
9-DR	36	46+111.000	RT.	6.51	4.31	0.92	1.29	51.7		
10-DR	36	46+212.647	LT.	18.82	12.44	2.65	3.73	149.2	18.6	5.67
11-DR	36	0+059.751 S.R. 515	RT.	15.55	10.28	2.19	3.08	123.3	28.6	8.72
12-DR	36	0+072.877 T.R. 403	RT.	7.95	5.25	1.12	1.58	63.0		
13-DR	38	0+063.800 S.R. 515	LT.	1.36	0.90	0.19	0.27	10.8		
14-DR	38	0+087.750 S.R. 515	LT.	2.47	1.64	0.35	0.49	19.6		
15-DR	38	0+103.645 S.R. 515	LT.	1.59	1.05	0.22	0.32	12.6		
16-DR	38	0+130.400 S.R. 515	RT.	4.79	3.17	0.68	0.95	38.0		
17-DR	34	45+916.453	LT.		1.44	0.31	0.43	17.2		
18-DR	36	0+065.090 T.R. 403	LT.	18.50	12.24					
TOTALS - Carried to General Summary				129.50	87.07	15.97	22.49	897.3	62.0	18.90

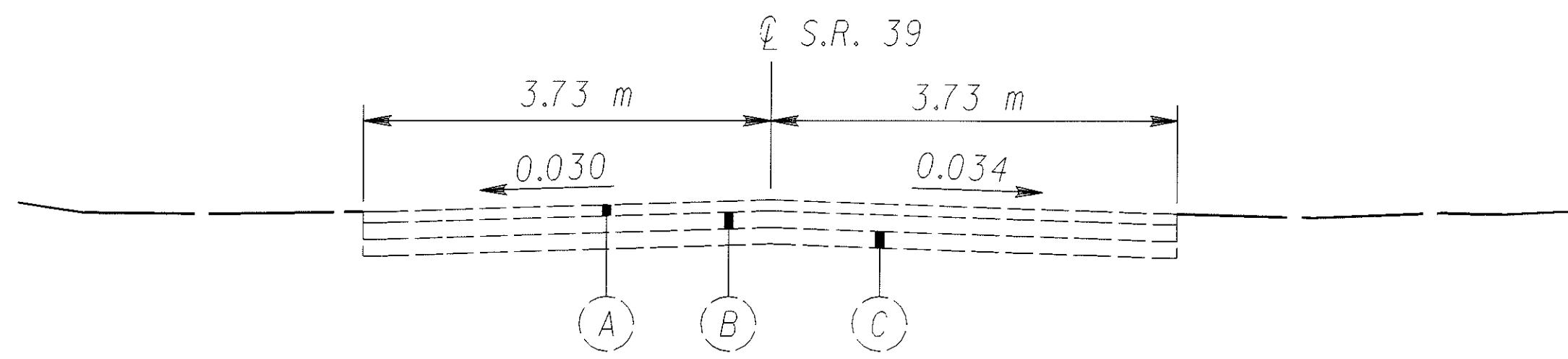
GUARDRAIL QUANTITIES

REF. NO.	PLAN SHEET NO.	STATION TO STATION	SIDE	202	606	606
				GUARDRAIL REMOVED	GUARDRAIL TYPE 5	ANCHOR ASSEMBLY TYPE E
				METER	METER	EACH
1-R	35-36	46+043.5 to 46+108.5	Lt.	65.00		
2-R	36-37	46+180.0 to 46+336.9	Rt.	156.90		
3-R	36-37	46+222.6 to 46+337.7	Lt.	115.10		
1-GR	35-36	46+043.5 to 46+108.3	Lt.		34.29	2
2-GR	36-37	46+181.5 to 46+337.7	Rt.		140.97	1
3-GR	36-37	46+222.6 to 46+336.9	Lt.		99.06	1
TOTALS - Carried to General Summary				337.00	274.32	4

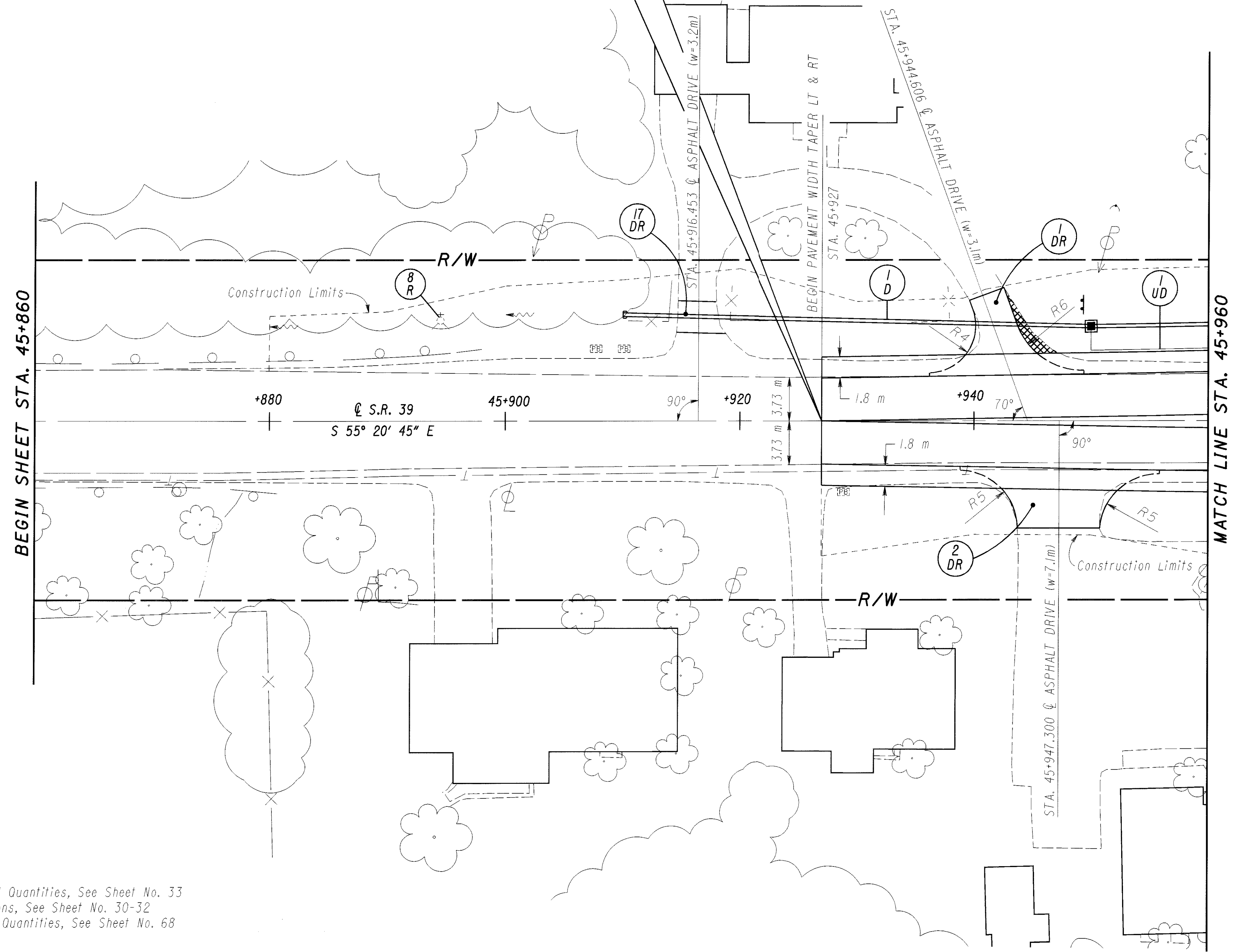
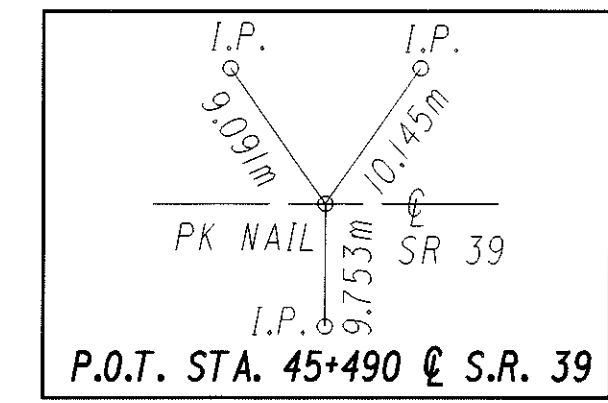


ESTIMATED QUANTITIES

HOL-39-46.140



TYPICAL SECTION - ADJOINING PAVEMENT (S.R. 39, STA. 45+927)
For Legend, See Sheet No. 3



PAVEMENT CALCULATIONS FOR 1-DR	
AREA	= 20.2 sq. m
ITEM 448	~ 20.2 sq. m x 0.032m = 0.65 Cu. Meter
ITEM 448	~ 20.2 sq. m x 0.045m = 0.91 Cu. Meter
ITEM 304	~ 20.2 sq. m x 0.150m = 3.03 Cu. Meter
ITEM 202	~ 4.6 sq. m (Pavement Removed)
ITEM 203	~ 4.6 sq. m x 0.305m = 1.40 Cu. Meter
PAVEMENT CALCULATIONS FOR 2-DR	
AREA	= 26.3 sq. m
ITEM 448	~ 26.3 sq. m x 0.032m = 0.84 Cu. Meter
ITEM 448	~ 26.3 sq. m x 0.045m = 1.18 Cu. Meter
ITEM 304	~ 26.3 sq. m x 0.150m = 3.95 Cu. Meter
PAVEMENT CALCULATIONS FOR 17-DR	
AREA	= 9.6 sq. m
ITEM 448	~ 9.6 sq. m x 0.032m = 0.31 Cu. Meter
ITEM 448	~ 9.6 sq. m x 0.045m = 0.43 Cu. Meter
ITEM 304	~ 9.6 sq. m x 0.150m = 1.44 Cu. Meter

For Estimated Quantities, See Sheet No. 33
For Calculations, See Sheet No. 30-32
For Drainage Quantities, See Sheet No. 68

HORIZONTAL SCALE IN METERS

CALCULATED SKW
CHECKED CJV

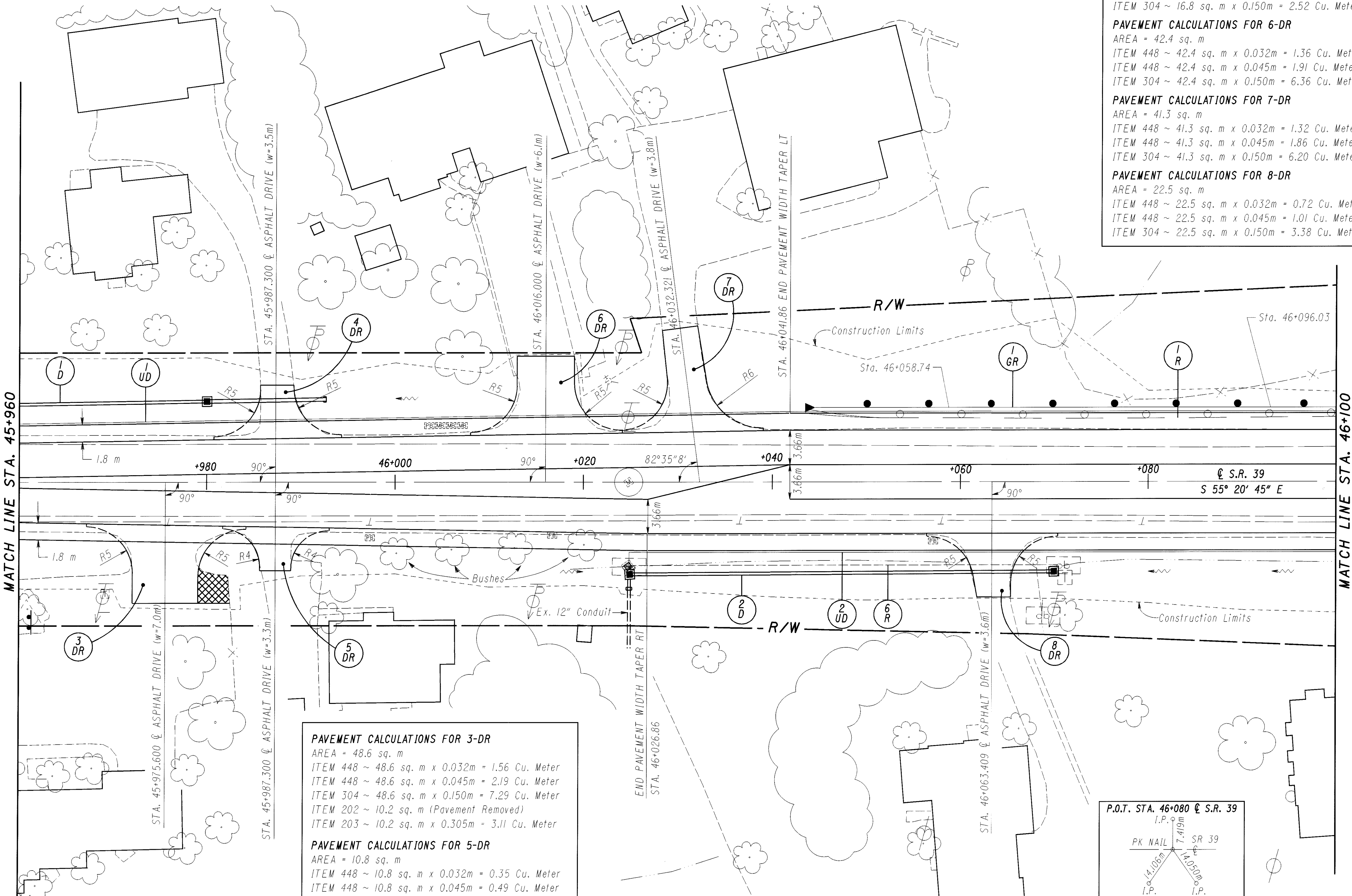
PLAN - S.R. 39
STA. 45+860 TO STA. 45+960

HOL-39-46.140

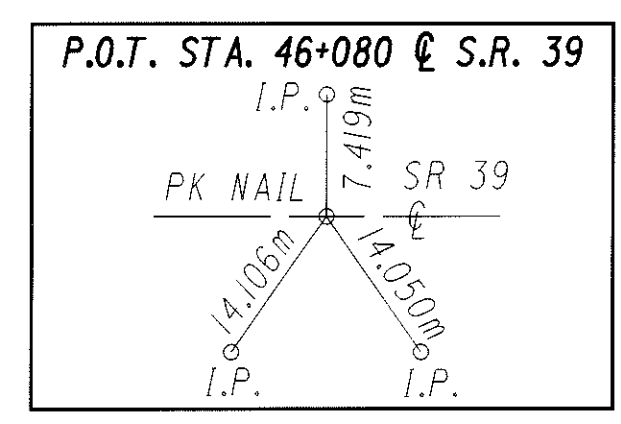
34
80

For Estimated Quantities, See Sheet No. 33
 For Calculations, See Sheet No. 30-32
 For Drainage Quantities, See Sheet No. 68

PAVEMENT CALCULATIONS FOR 4-DR	
AREA	= 16.8 sq. m
ITEM 448	~ 16.8 sq. m x 0.032m = 0.54 Cu. Meter
ITEM 448	~ 16.8 sq. m x 0.045m = 0.76 Cu. Meter
ITEM 304	~ 16.8 sq. m x 0.150m = 2.52 Cu. Meter
PAVEMENT CALCULATIONS FOR 6-DR	
AREA	= 42.4 sq. m
ITEM 448	~ 42.4 sq. m x 0.032m = 1.36 Cu. Meter
ITEM 448	~ 42.4 sq. m x 0.045m = 1.91 Cu. Meter
ITEM 304	~ 42.4 sq. m x 0.150m = 6.36 Cu. Meter
PAVEMENT CALCULATIONS FOR 7-DR	
AREA	= 41.3 sq. m
ITEM 448	~ 41.3 sq. m x 0.032m = 1.32 Cu. Meter
ITEM 448	~ 41.3 sq. m x 0.045m = 1.86 Cu. Meter
ITEM 304	~ 41.3 sq. m x 0.150m = 6.20 Cu. Meter
PAVEMENT CALCULATIONS FOR 8-DR	
AREA	= 22.5 sq. m
ITEM 448	~ 22.5 sq. m x 0.032m = 0.72 Cu. Meter
ITEM 448	~ 22.5 sq. m x 0.045m = 1.01 Cu. Meter
ITEM 304	~ 22.5 sq. m x 0.150m = 3.38 Cu. Meter



PAVEMENT CALCULATIONS FOR 3-DR	
AREA	= 48.6 sq. m
ITEM 448	~ 48.6 sq. m x 0.032m = 1.56 Cu. Meter
ITEM 448	~ 48.6 sq. m x 0.045m = 2.19 Cu. Meter
ITEM 304	~ 48.6 sq. m x 0.150m = 7.29 Cu. Meter
ITEM 202	~ 10.2 sq. m (Pavement Removed)
ITEM 203	~ 10.2 sq. m x 0.305m = 3.11 Cu. Meter
PAVEMENT CALCULATIONS FOR 5-DR	
AREA	= 10.8 sq. m
ITEM 448	~ 10.8 sq. m x 0.032m = 0.35 Cu. Meter
ITEM 448	~ 10.8 sq. m x 0.045m = 0.49 Cu. Meter
ITEM 304	~ 10.8 sq. m x 0.150m = 1.62 Cu. Meter



MATCH LINE STA. 45+960

MATCH LINE STA. 46+100

PLAN - S.R. 39
 STA. 45+960 TO STA. 46+100

HOL - 39 - 46.140

CALCULATED SKW
 CHECKED CJV

HORIZONTAL SCALE IN METERS

PAVEMENT CALCULATIONS FOR 9-DR

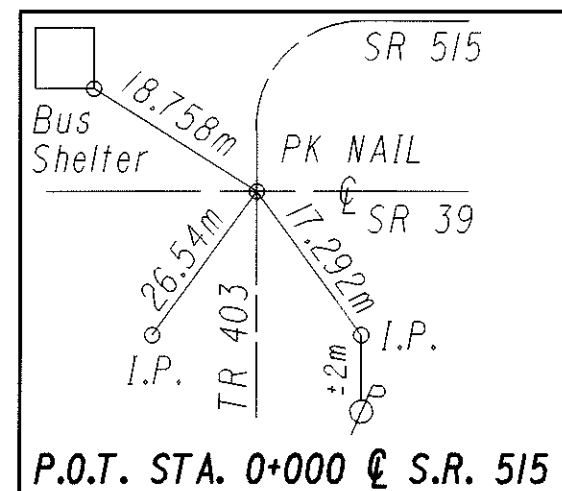
AREA = 28.7 sq. m
 ITEM 448 ~ 28.7 sq. m x 0.032m = 0.92 Cu. Meter
 ITEM 448 ~ 28.7 sq. m x 0.045m = 1.29 Cu. Meter
 ITEM 304 ~ 28.7 sq. m x 0.150m = 4.31 Cu. Meter

PAVEMENT CALCULATIONS FOR 10-DR

AREA = 82.9 sq. m
 ITEM 448 ~ 82.9 sq. m x 0.032m = 2.65 Cu. Meter
 ITEM 448 ~ 82.9 sq. m x 0.045m = 3.73 Cu. Meter
 ITEM 304 ~ 82.9 sq. m x 0.150m = 12.44 Cu. Meter
 ITEM 202 ~ 18.6 sq. m (Pavement Removed)
 ITEM 203 ~ 18.6 sq. m x 0.305m = 5.67 Cu. Meter

PAVEMENT CALCULATIONS FOR 11-DR

AREA = 68.5 sq. m
 ITEM 448 ~ 68.5 sq. m x 0.032m = 2.19 Cu. Meter
 ITEM 448 ~ 68.5 sq. m x 0.045m = 3.08 Cu. Meter
 ITEM 304 ~ 68.5 sq. m x 0.150m = 10.28 Cu. Meter
 ITEM 202 ~ 28.6 sq. m (Pavement Removed)
 ITEM 203 ~ 28.6 sq. m x 0.305m = 8.72 Cu. Meter

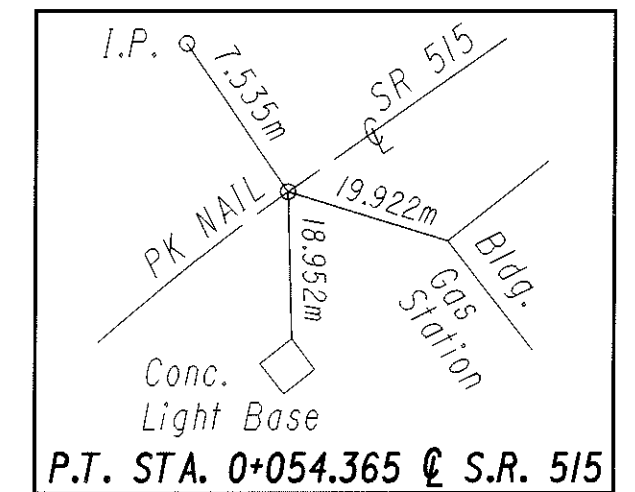


CURVE DATA

P.I. STA. = 0+036.525
 $\Delta = 38^\circ 42' 42''$ (RT)
 R = 55.000 m
 T = 19.321 m
 L = 37.161 m
 E = 3.295 m
 $e_{max} = 0.04$

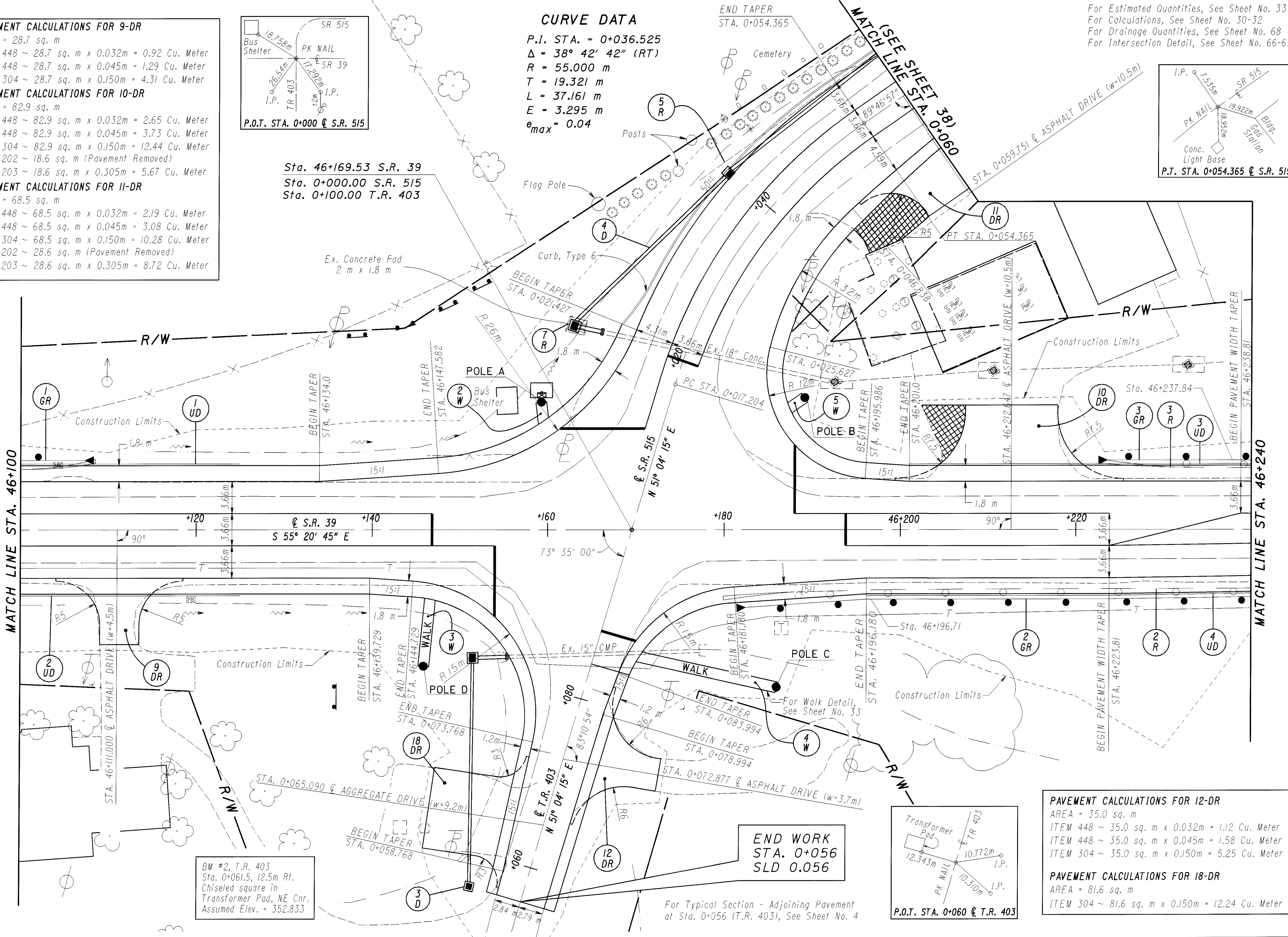
Sta. 46+169.53 S.R. 39
 Sta. 0+000.00 S.R. 515
 Sta. 0+100.00 T.R. 403

For Estimated Quantities, See Sheet No. 33
 For Calculations, See Sheet No. 30-32
 For Drainage Quantities, See Sheet No. 68
 For Intersection Detail, See Sheet No. 66-67



MATCH LINE STA. 46+100

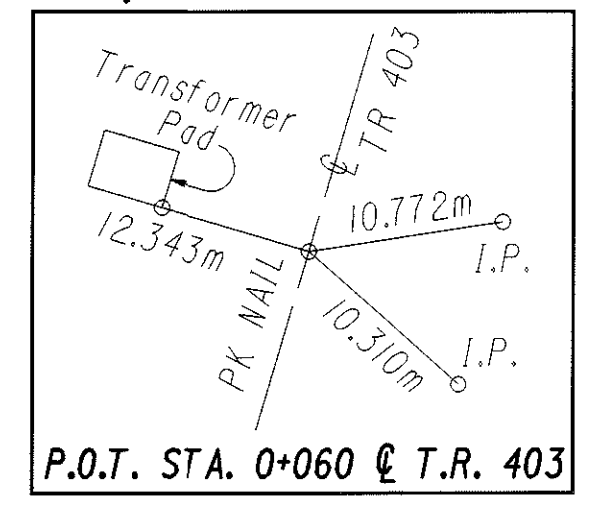
MATCH LINE STA. 46+240



BM #2, T.R. 403
 Sta. 0+061.5, 12.5m Rt.
 Chiseled square in
 Transformer Pad, NE Cnr.
 Assumed Elev. = 352.833

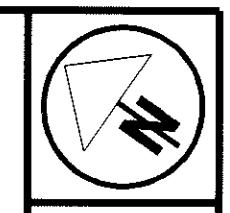
END WORK
 STA. 0+056
 SLD 0.056

For Typical Section - Adjoining Pavement
 at Sta. 0+056 (T.R. 403), See Sheet No. 4



PAVEMENT CALCULATIONS FOR 12-DR
 AREA = 35.0 sq. m
 ITEM 448 ~ 35.0 sq. m x 0.032m = 1.12 Cu. Meter
 ITEM 448 ~ 35.0 sq. m x 0.045m = 1.58 Cu. Meter
 ITEM 304 ~ 35.0 sq. m x 0.150m = 5.25 Cu. Meter

PAVEMENT CALCULATIONS FOR 18-DR
 AREA = 81.6 sq. m
 ITEM 304 ~ 81.6 sq. m x 0.150m = 12.24 Cu. Meter



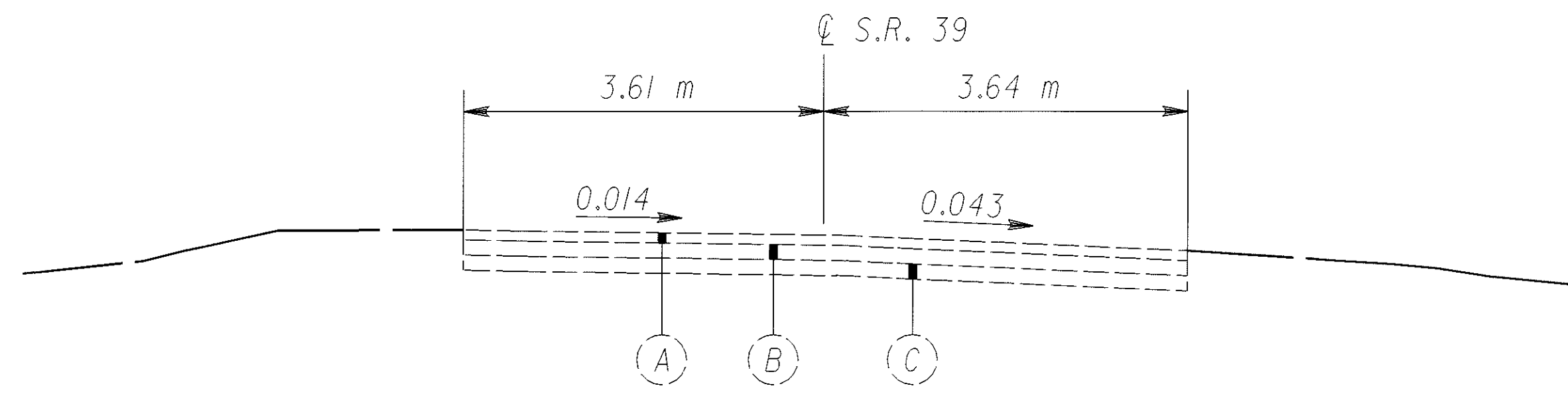
HORIZONTAL
SCALE IN METERS

CALCULATED
SKW
CHECKED
C.V

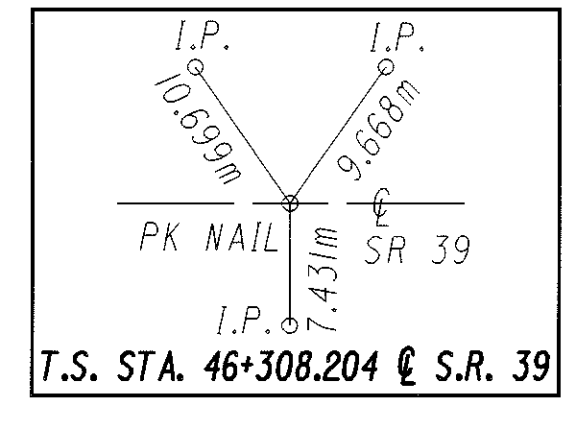
PLAN - S.R. 39
STA. 46+240 TO STA. 46+380

HOL-39-46.140

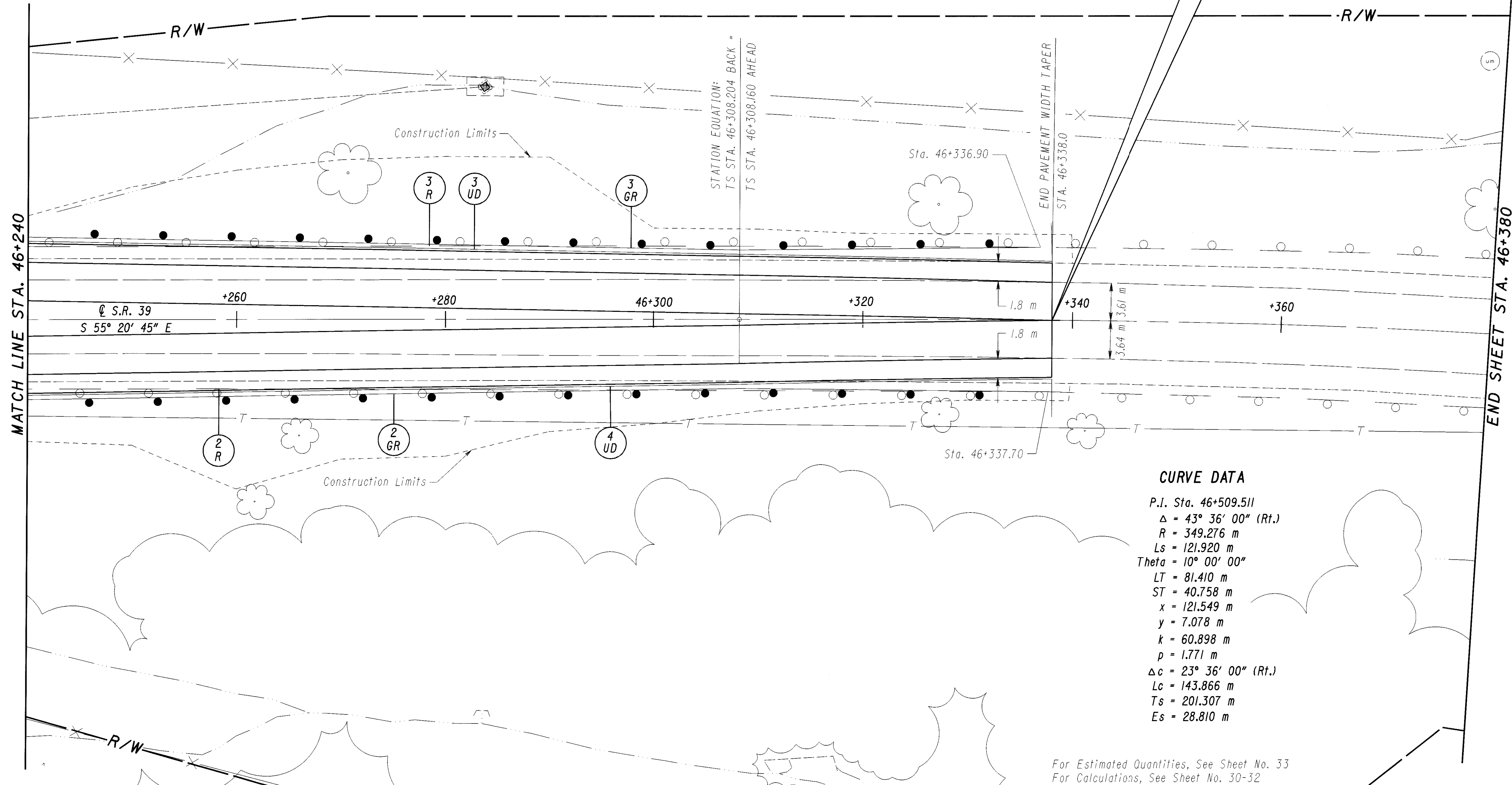
37
80



TYPICAL SECTION - ADJOINING PAVEMENT (S.R. 39, STA. 46+338)
For Legend, See Sheet No. 3



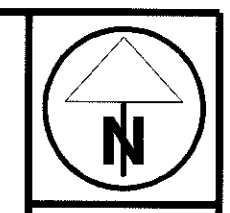
TE21-G010(227)
END PROJECT
STA. 46+338
SLD 46.338



CURVE DATA

P.I. Sta. 46+509.511
 $\Delta = 43^\circ 36' 00''$ (Rt.)
 $R = 349.276$ m
 $L_s = 121.920$ m
 $\text{Theta} = 10^\circ 00' 00''$
 $LT = 81.410$ m
 $ST = 40.758$ m
 $x = 121.549$ m
 $y = 7.078$ m
 $k = 60.898$ m
 $p = 1.771$ m
 $\Delta c = 23^\circ 36' 00''$ (Rt.)
 $L_c = 143.866$ m
 $T_s = 201.307$ m
 $E_s = 28.810$ m

For Estimated Quantities, See Sheet No. 33
For Calculations, See Sheet No. 30-32



HORIZONTAL SCALE IN METERS

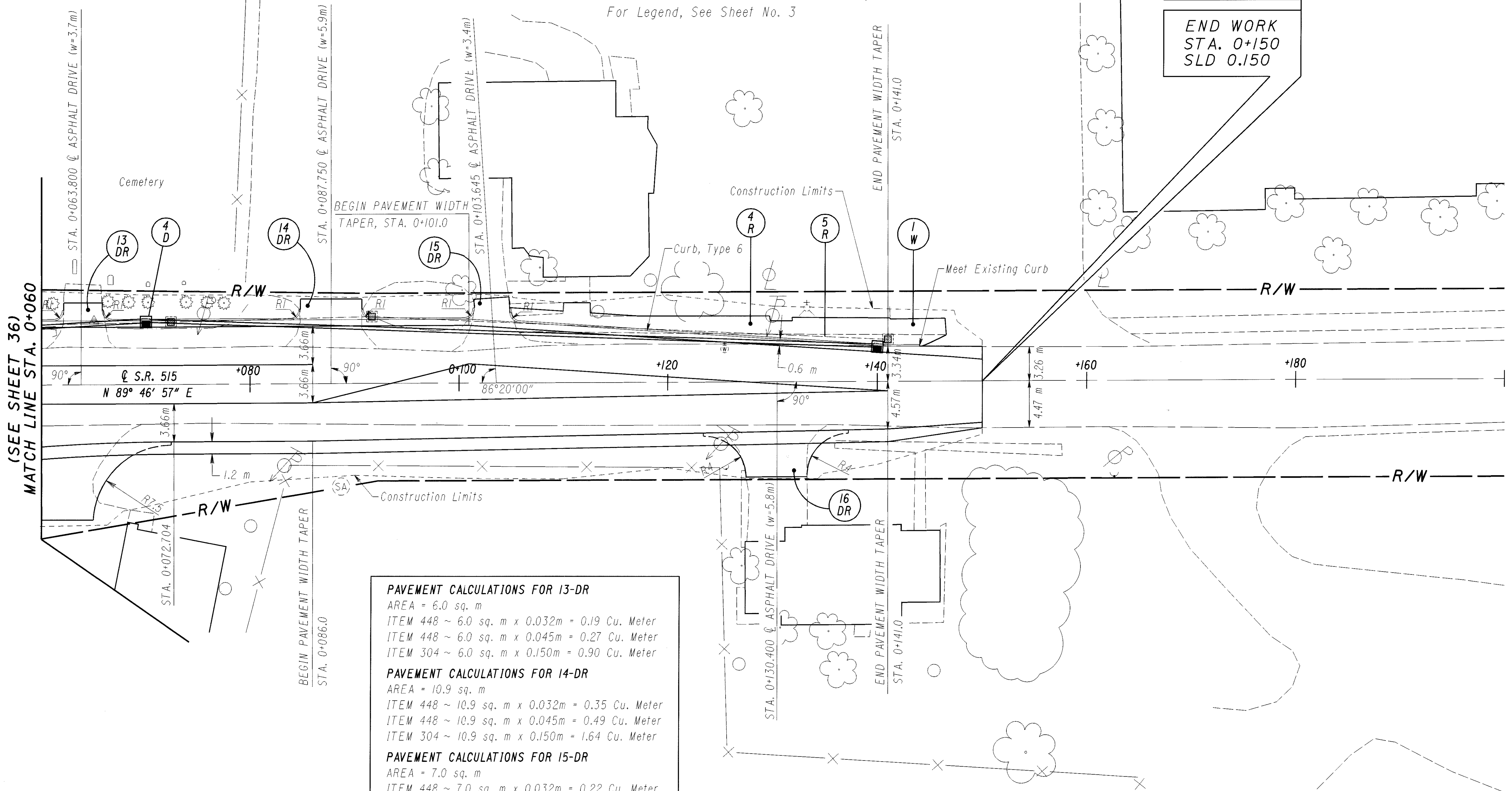
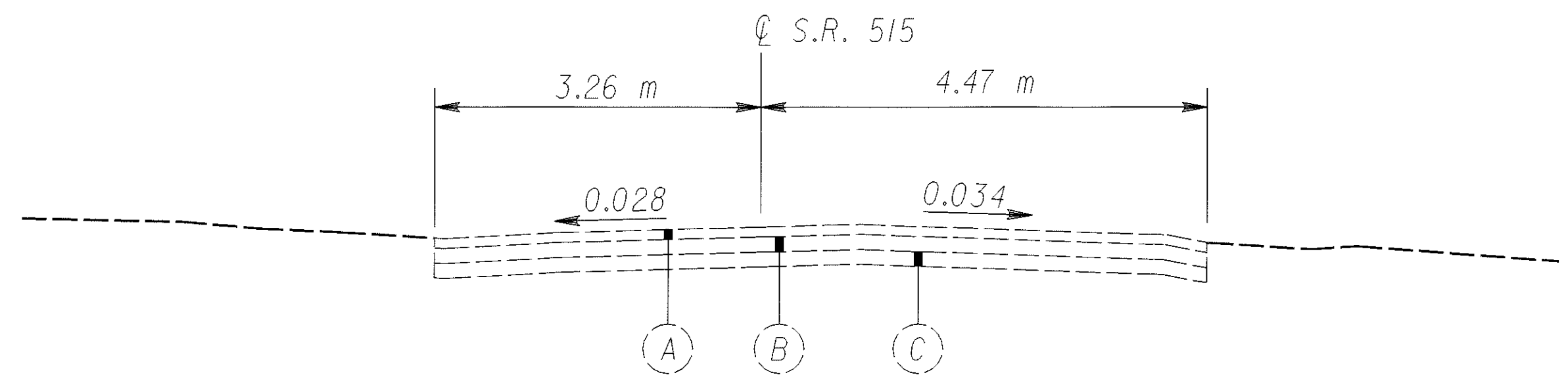
CALCULATED SKW CHECKED CJV

PLAN - S.R. 515
STA. 0+060 TO STA. 0+200

HOL-39-46.140

38
80

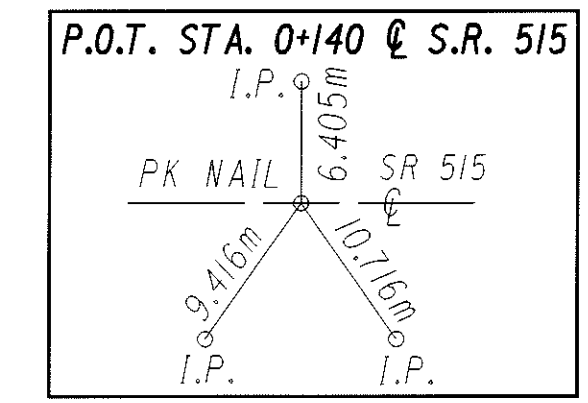
TYPICAL SECTION - ADJOINING PAVEMENT (S.R. 515, STA. 0+150)
For Legend, See Sheet No. 3



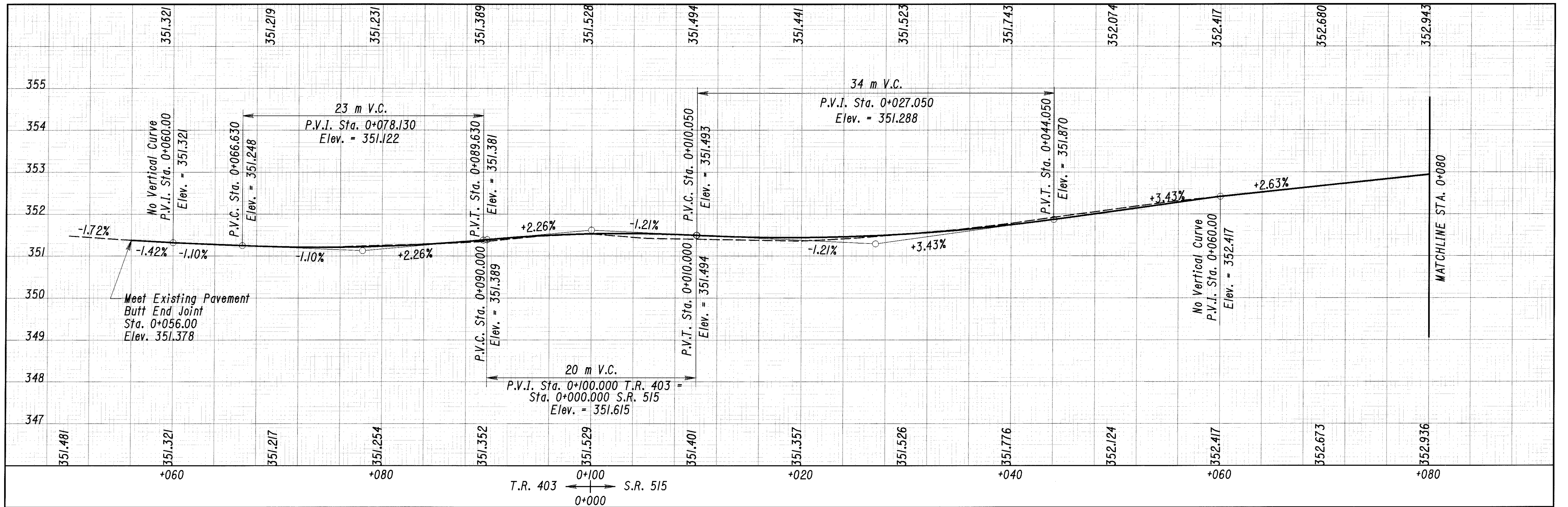
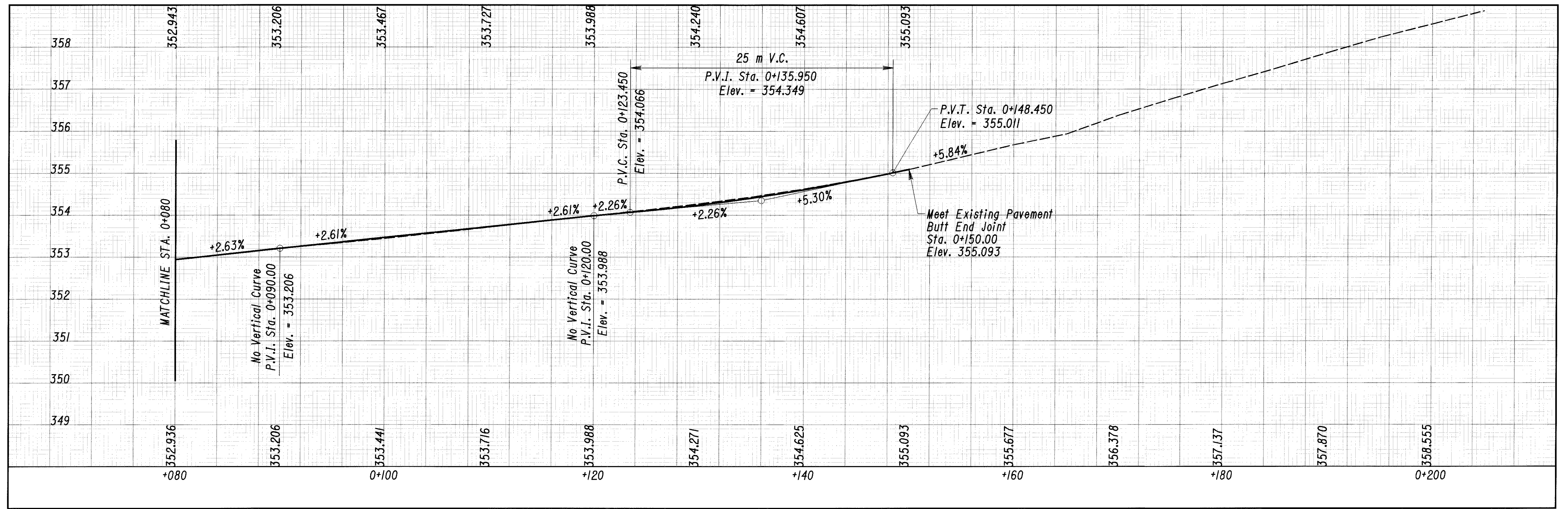
(SEE SHEET 36)
MATCH LINE STA. 0+060

For Estimated Quantities, See Sheet No. 33
For Calculations, See Sheet No. 30-32
For Drainage Quantities, See Sheet No. 68

PAVEMENT CALCULATIONS FOR 13-DR
AREA = 6.0 sq. m
ITEM 448 ~ 6.0 sq. m x 0.032m = 0.19 Cu. Meter
ITEM 448 ~ 6.0 sq. m x 0.045m = 0.27 Cu. Meter
ITEM 304 ~ 6.0 sq. m x 0.150m = 0.90 Cu. Meter
PAVEMENT CALCULATIONS FOR 14-DR
AREA = 10.9 sq. m
ITEM 448 ~ 10.9 sq. m x 0.032m = 0.35 Cu. Meter
ITEM 448 ~ 10.9 sq. m x 0.045m = 0.49 Cu. Meter
ITEM 304 ~ 10.9 sq. m x 0.150m = 1.64 Cu. Meter
PAVEMENT CALCULATIONS FOR 15-DR
AREA = 7.0 sq. m
ITEM 448 ~ 7.0 sq. m x 0.032m = 0.22 Cu. Meter
ITEM 448 ~ 7.0 sq. m x 0.045m = 0.32 Cu. Meter
ITEM 304 ~ 7.0 sq. m x 0.150m = 1.05 Cu. Meter
PAVEMENT CALCULATIONS FOR 16-DR
AREA = 21.1 sq. m
ITEM 448 ~ 21.1 sq. m x 0.032m = 0.68 Cu. Meter
ITEM 448 ~ 21.1 sq. m x 0.045m = 0.95 Cu. Meter
ITEM 304 ~ 21.1 sq. m x 0.150m = 3.17 Cu. Meter



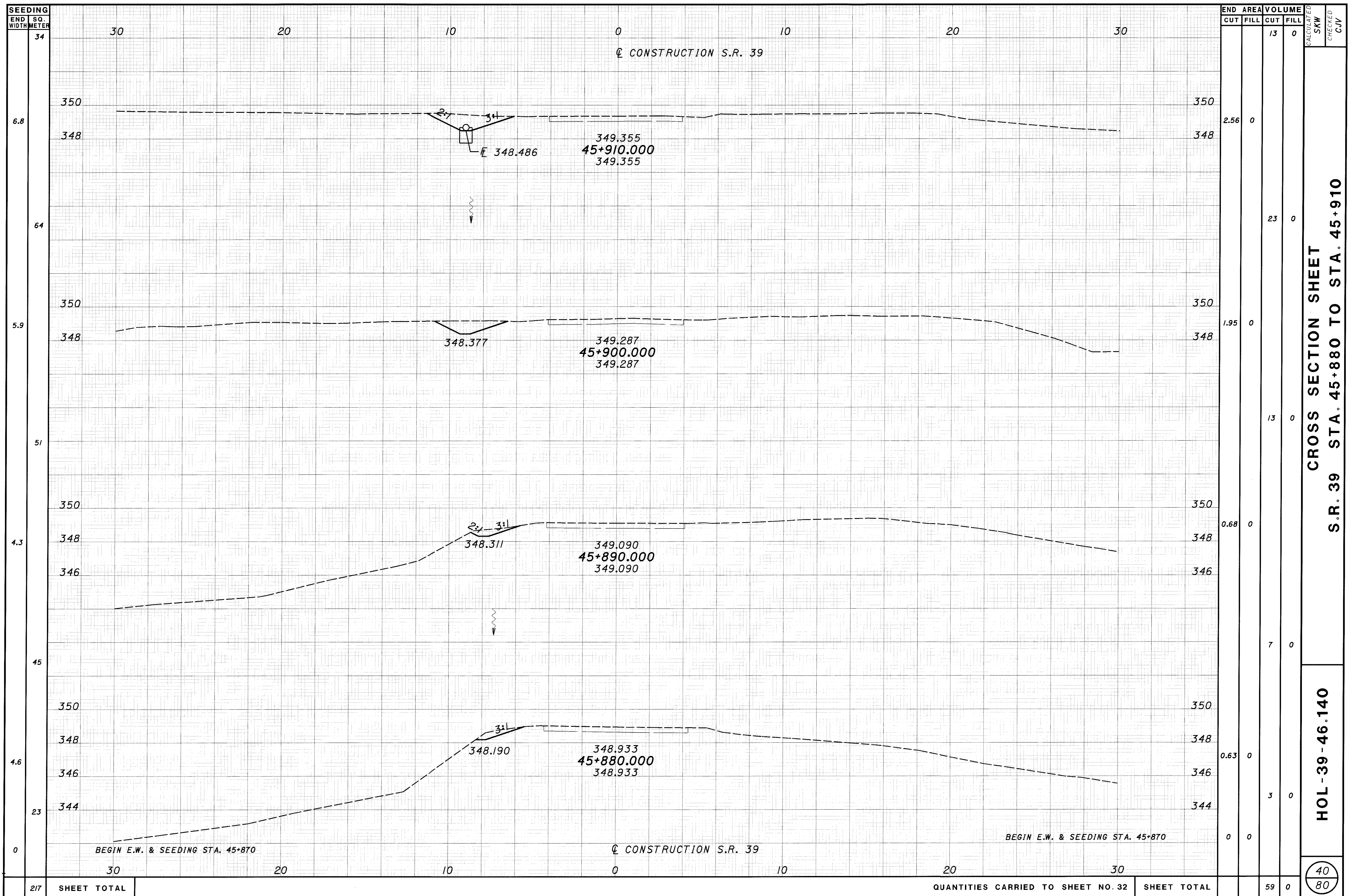
BM #1, S.R. 515
Sta. 0+133.0, 13.6m Rt.
Chiseled square in step @
Wm M. Koch Gallery, NE Cnr.
Assumed Elev. = 354.343



CALCULATED
SKW
CHECKED
CJV

PROFILE CORRECTION S.R. 515 AND T.R. 403

HOL-39-46.140



CROSS SECTION SHEET
 S.R. 39 STA. 45+880 TO STA. 45+910

HOL-39-46.140

40
 80

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

SEEDING
END SO.
WIDTH METER

END AREA
CUT FILL
VOLUME
CUT FILL
CALCULATED
SKW
CHECKED
C.V.

30

20

10

0

10

20

30

CONSTRUCTION S.R. 39

354

354

352

352

350

350

348

348

DR

E 348.765

349.888
45+940.000
349.888

12:1

93

352

352

350

350

348

348

E 348.672

3+

12:1

E 349.389

349.743
45+930.000
349.743

12:1

52

352

352

350

350

348

348

E 348.579

349.622
45+920.000
349.622

CONSTRUCTION S.R. 39

30

20

10

0

10

20

30

244 SHEET TOTAL

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

86

0

CROSS SECTION SHEET
S.R. 39 STA. 45+920 TO STA. 45+940
HOL-39-46.140

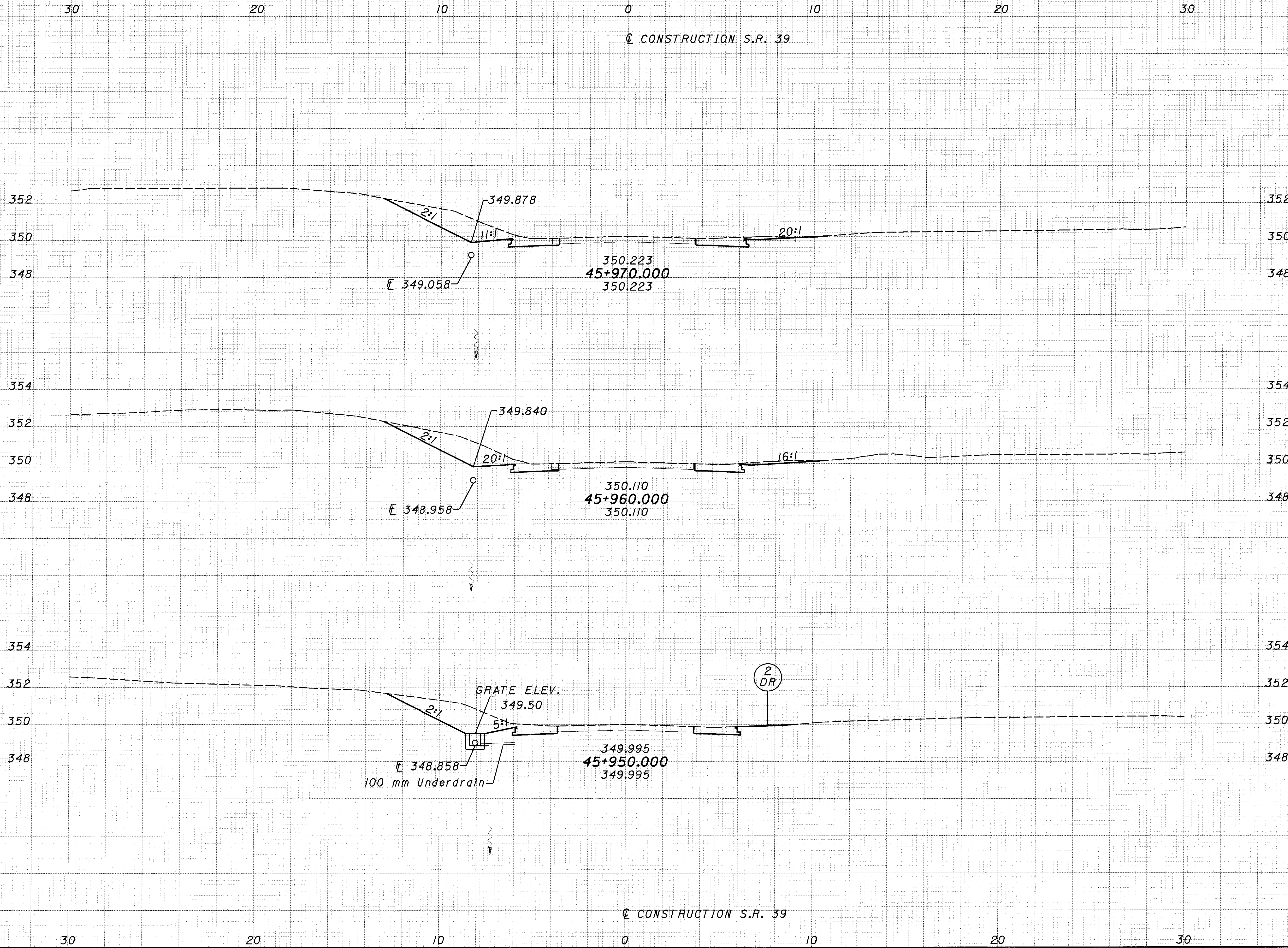
41
80

SEEDING
END SQ.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED SKW
CHECKED C.V.

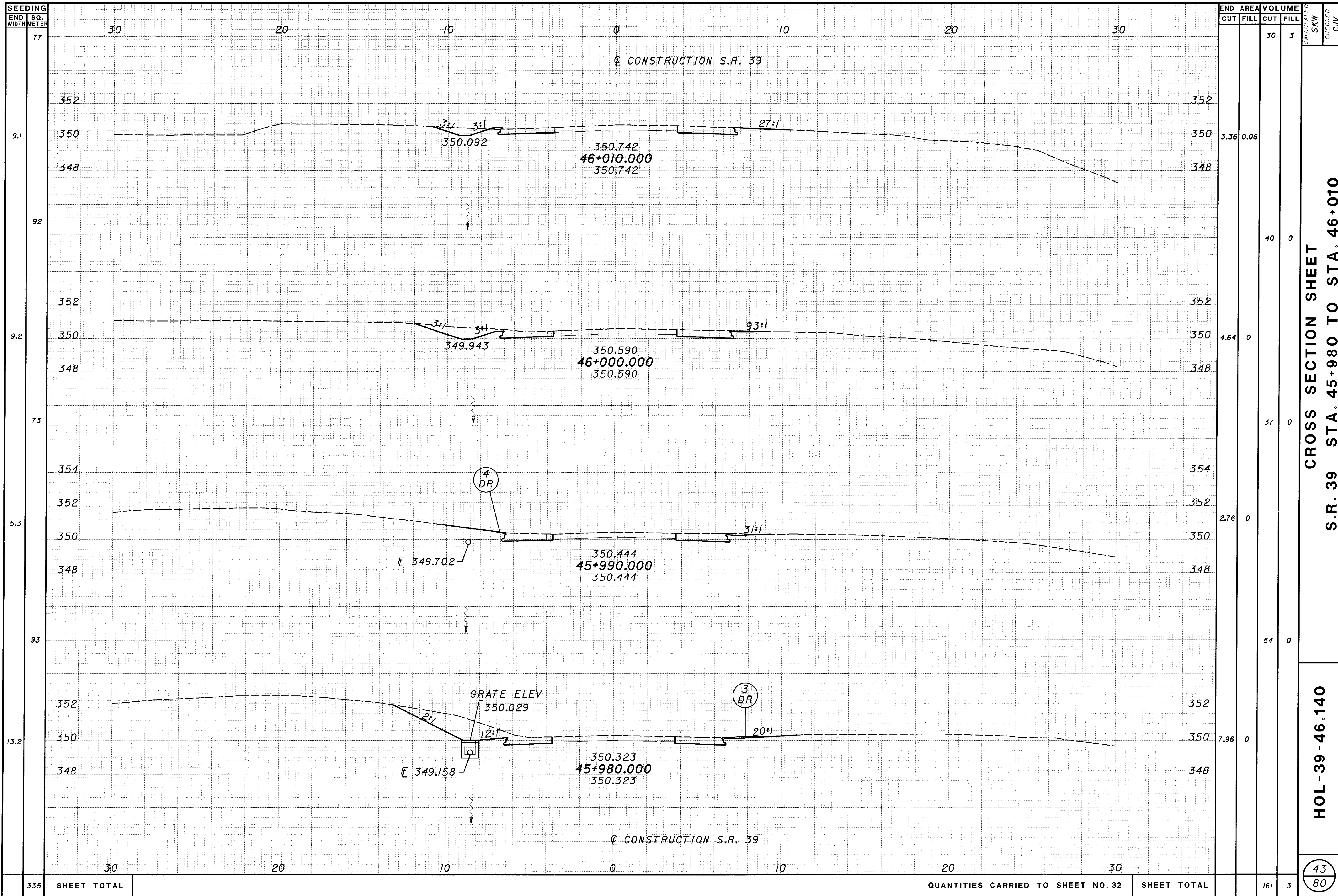
132
134
136
126
11.6
392

79 0
78 0
78 0
7.81 0
235 0
42
80



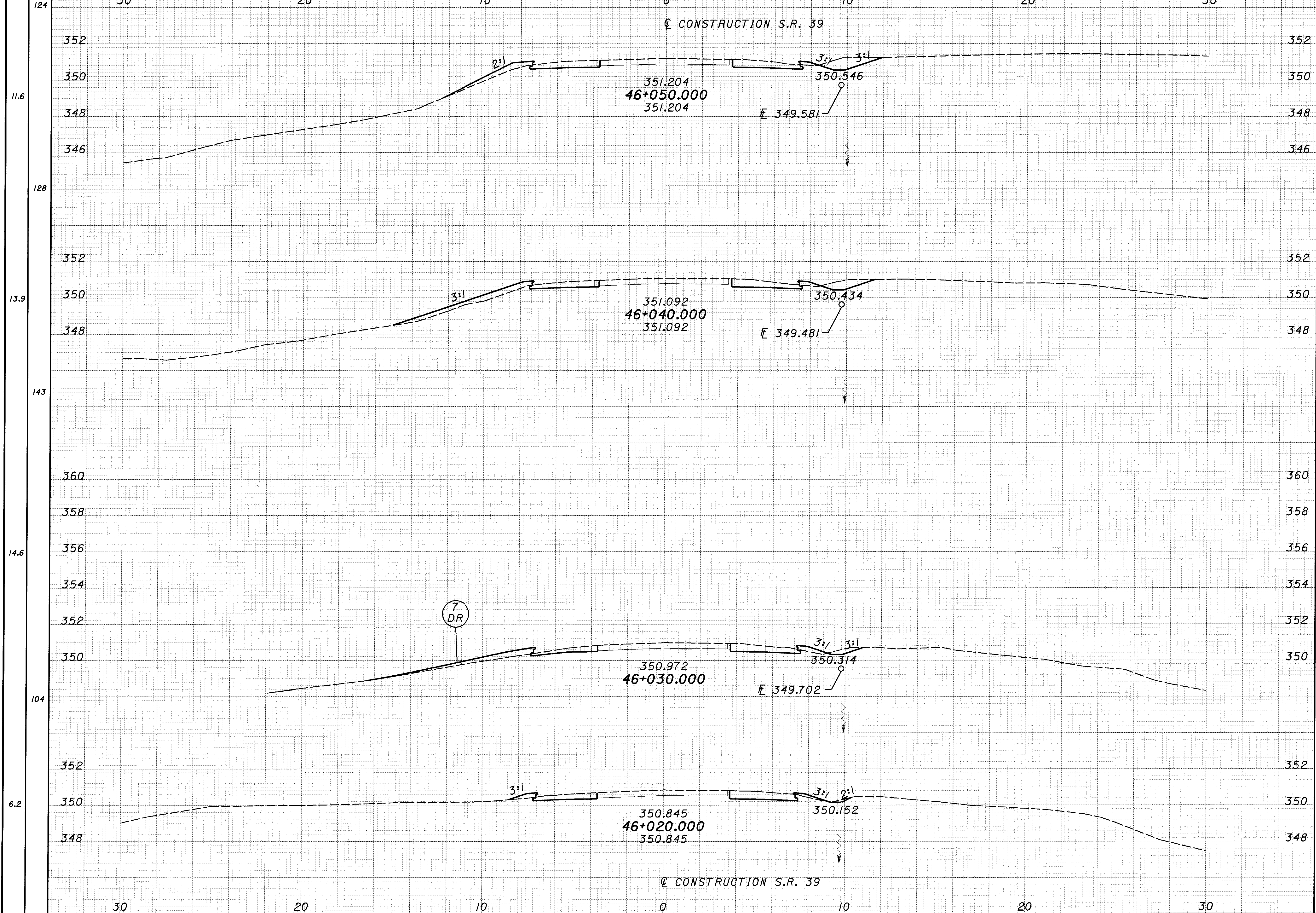
CROSS SECTION SHEET
S.R. 39 STA. 45+950 TO STA. 45+970
HOL-39-46.140

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL



SEEDING
END SO.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
SKW
CHECKED
CJV



END	AREA	VOLUME	END	AREA	VOLUME
CUT	FILL	CUT	FILL	CUT	FILL
39	18	3.87	39	18	1.15
36	16	3.33	36	16	2.07
29	19	2.46	29	19	1.75
25	11	2.55	25	11	0.45
129	64		129	64	

CROSS SECTION SHEET
S.R. 39 STA. 46+020 TO STA. 46+050

HOL-39-46.140

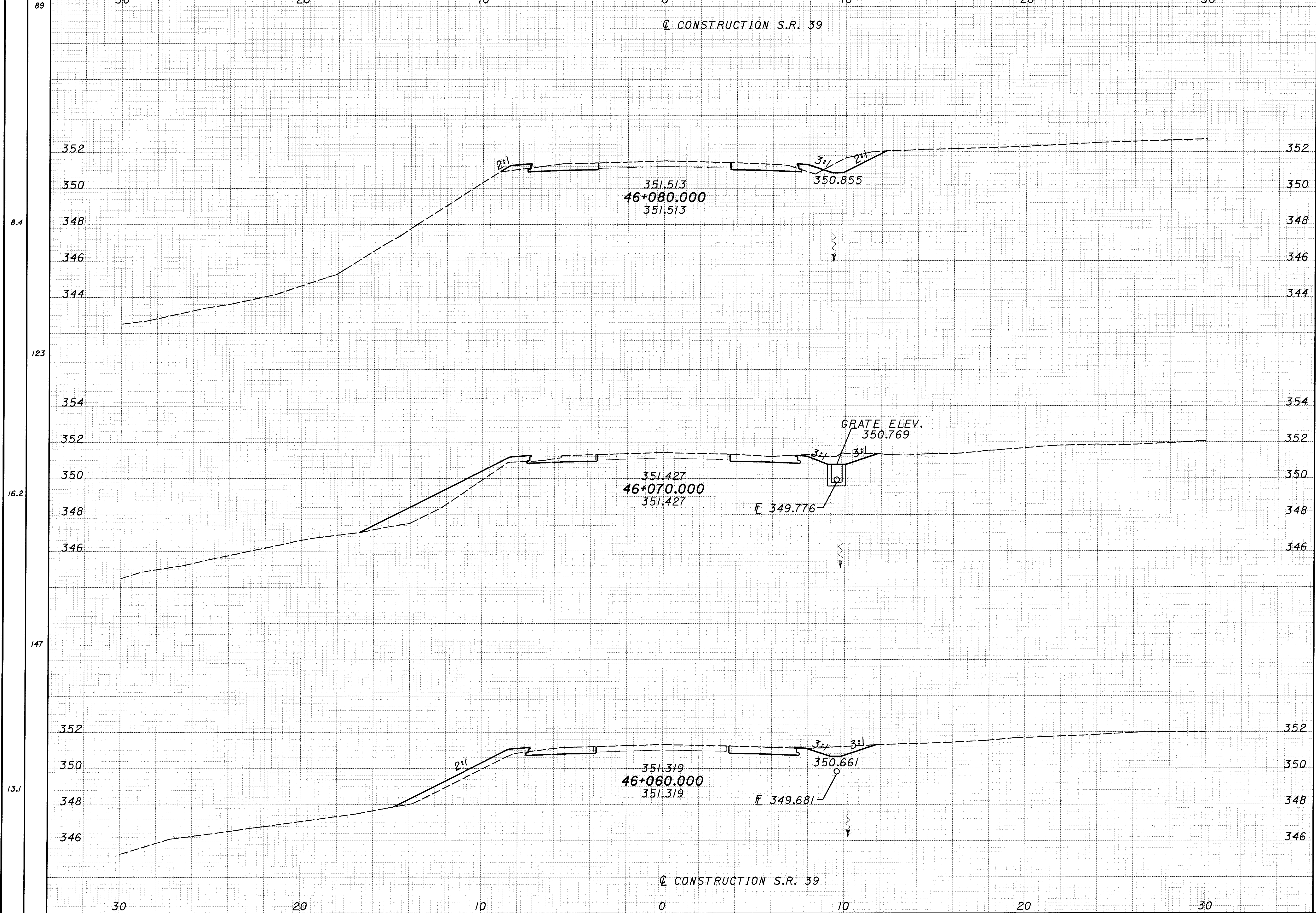
44
80

499 SHEET TOTAL

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

SEEDING
END SQ.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED SKW CHECKED CJV

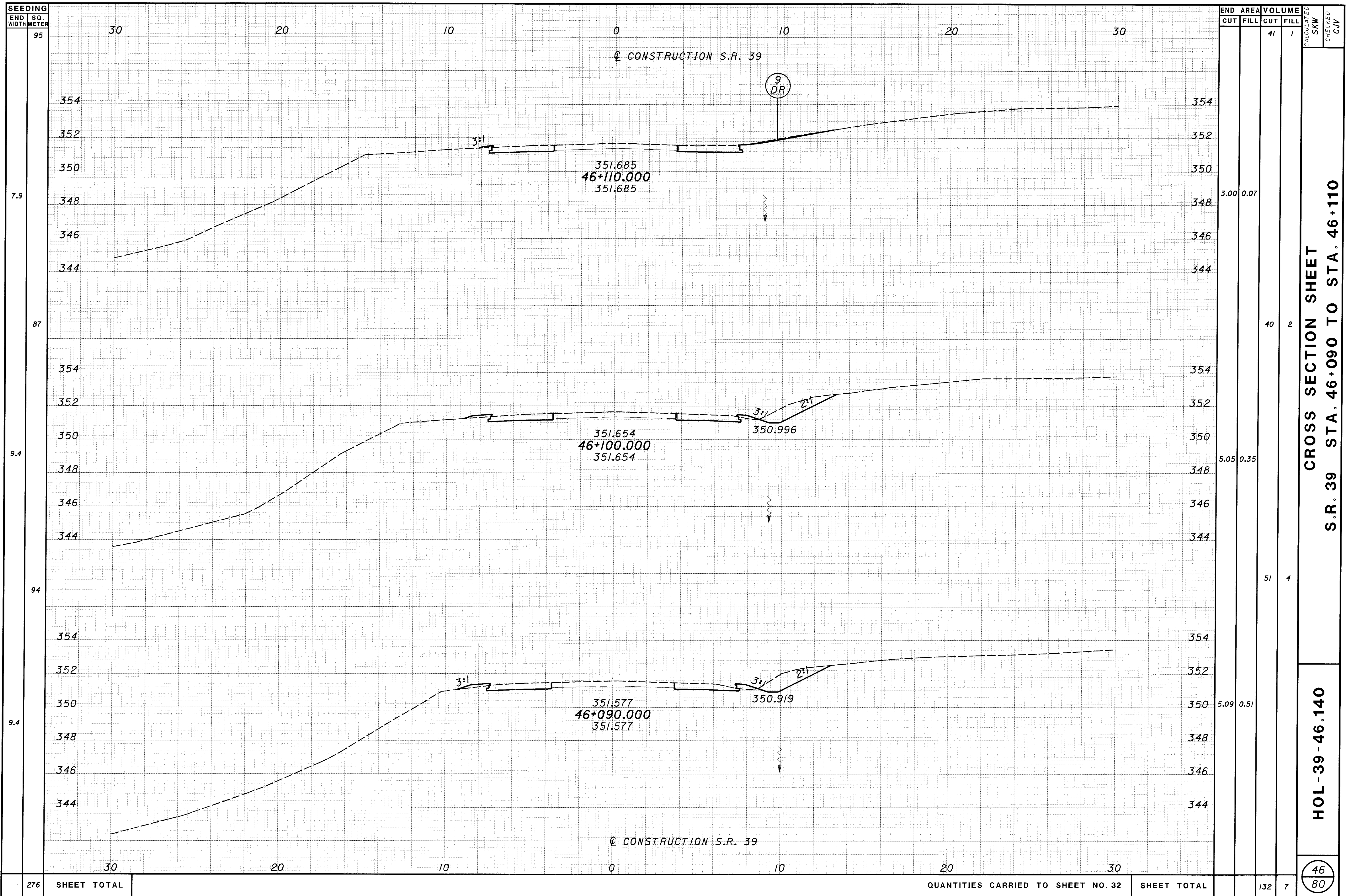


END AREA	VOLUME	CUT	FILL	CUT	FILL
4.06	0.77	46	6		
3.74	5.20	39	30		
3.84	2.36	38	38		
123	74				

CROSS SECTION SHEET
S.R. 39 STA. 46+060 TO STA. 46+080

HOL-39-46.140

45
80

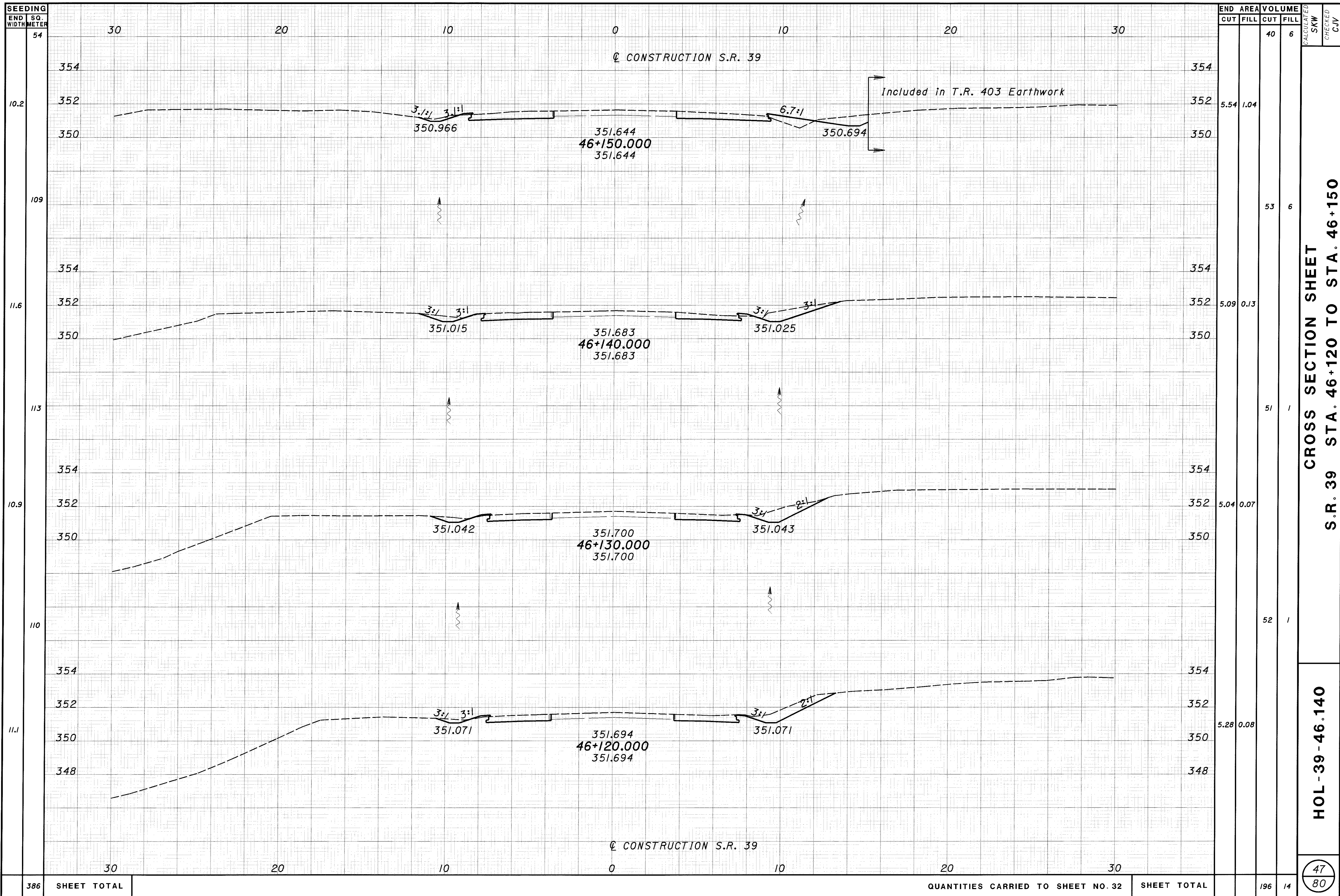


SEEDING	END SO. WIDTH	SO. METER
	95	
	87	
	94	
	94	
276	SHEET TOTAL	

END CUT	AREA FILL	VOLUME CUT	VOLUME FILL	CALCULATED SKW	CHECKED C.V.
5.05	0.35	40	2		
5.09	0.51	51	4		
SHEET TOTAL					
132		7			

CROSS SECTION SHEET
 S.R. 39 STA. 46+090 TO STA. 46+110
 HOL-39-46.140
 46
 80

QUANTITIES CARRIED TO SHEET NO. 32



CROSS SECTION SHEET
 S.R. 39 STA. 46+120 TO STA. 46+150

HOL-39-46.140

47
80

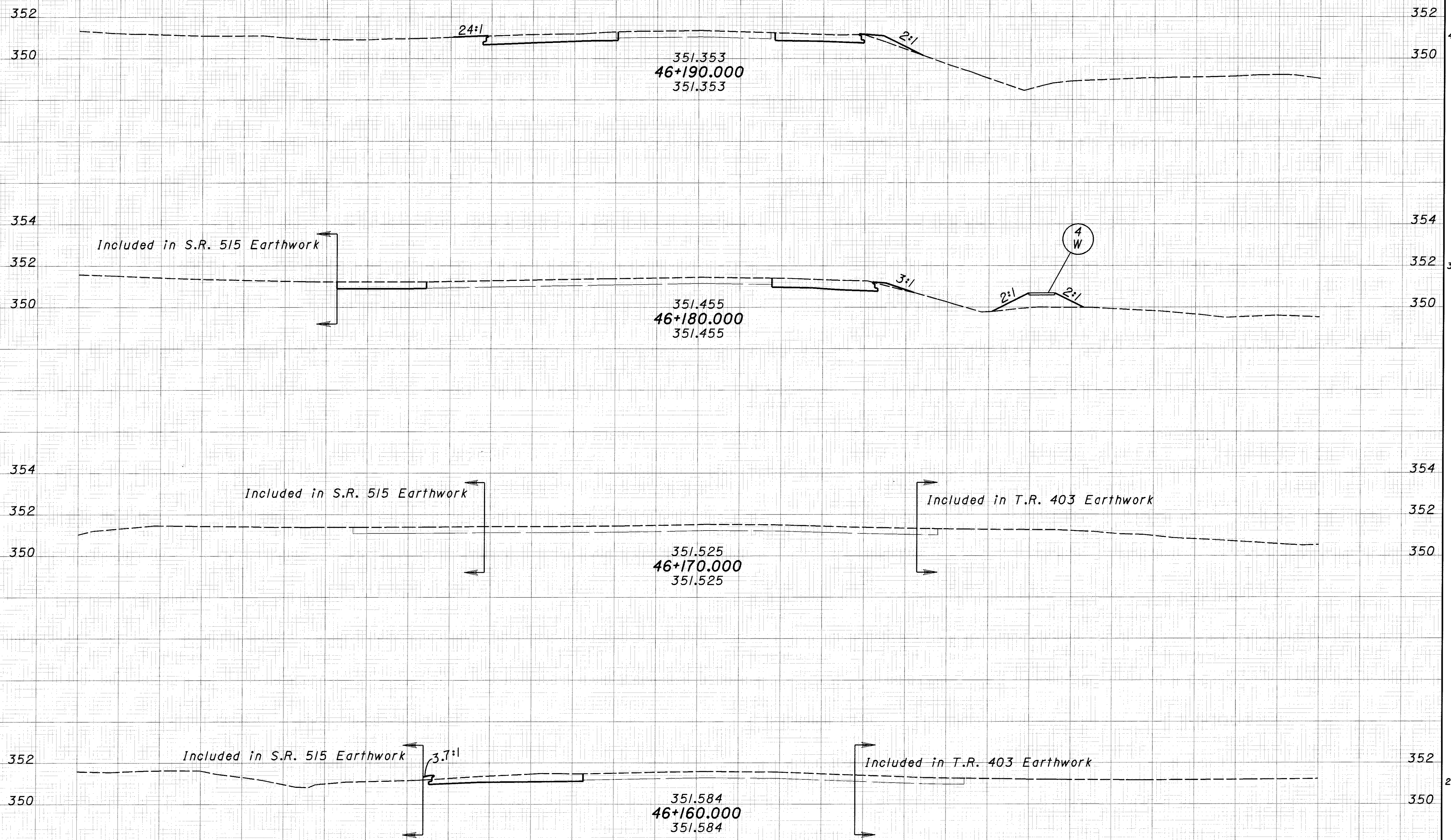
SEEDING
END SO.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
SKW
CHECKED
CJV

66
6.7
7.1
7.4
37
0
3
0.5
177

30 20 10 0 10 20 30

CONSTRUCTION S.R. 39



END	AREA	VOLUME	SKW	CJV
CUT	FILL	CUT	FILL	
4.03	0.39	34	5	
		38	12	
3.65	1.96	18	10	
0	0	12	0	
2.42	0.08	102	27	

CROSS SECTION SHEET
S.R. 39 STA. 46+160 TO STA. 46+190

HOL - 39 - 46.140

48
80

CONSTRUCTION S.R. 39

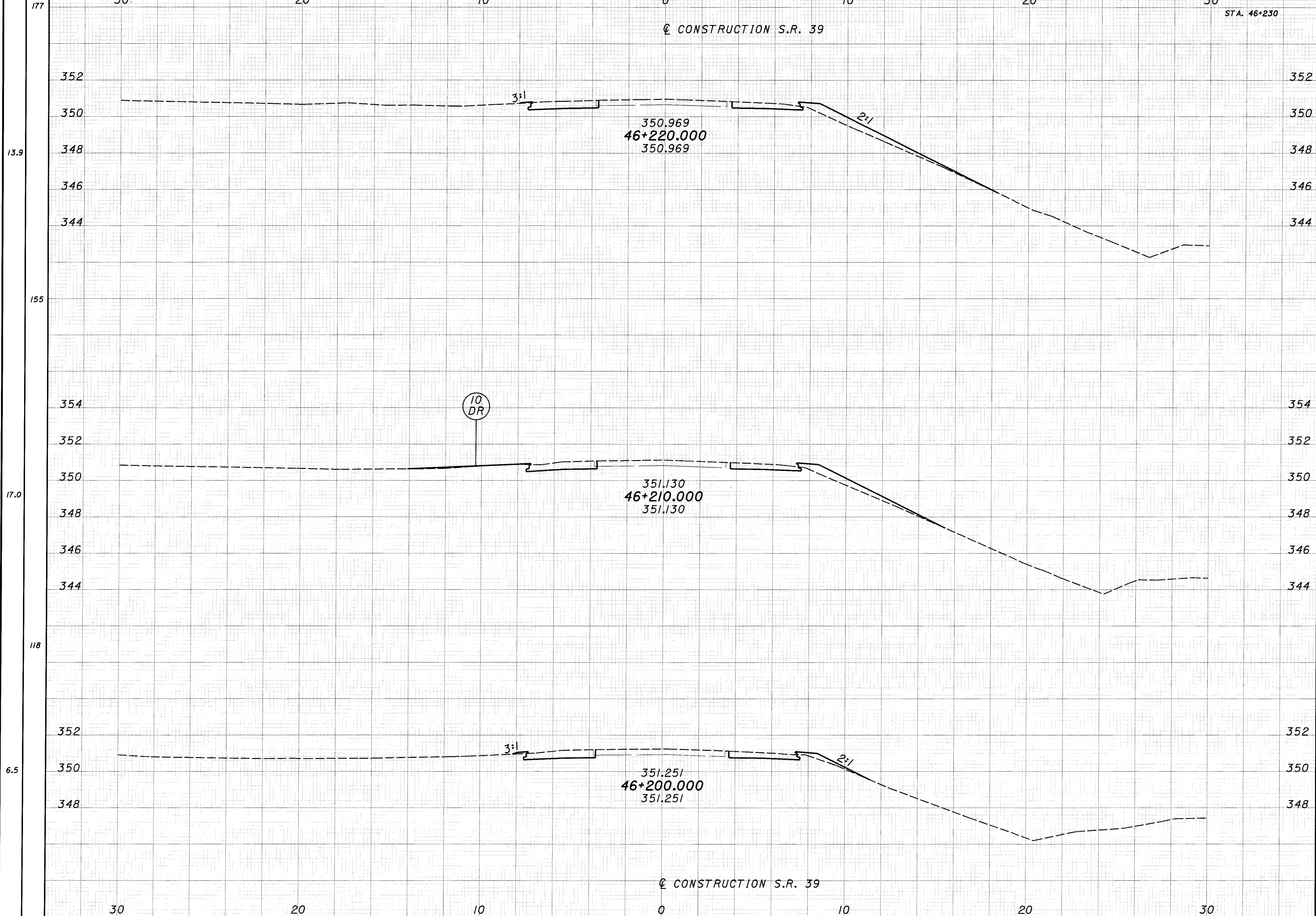
STA. 46+150

30 20 10 0 10 20 30

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

SEEDING
END SQ.
WIDTH METER

END AREA
CUT FILL
VOLUME
CUT FILL
CALCULATED
SKW
CHECKED
CJV



END AREA	VOLUME	CALCULATED	CHECKED
CUT	FILL	CUT	FILL
2.64	2.74	27	37
2.64	2.15	26	24
2.73	0.62	27	14
114	80	49	80

CROSS SECTION SHEET
S.R. 39 STA. 46+200 TO STA. 46+220

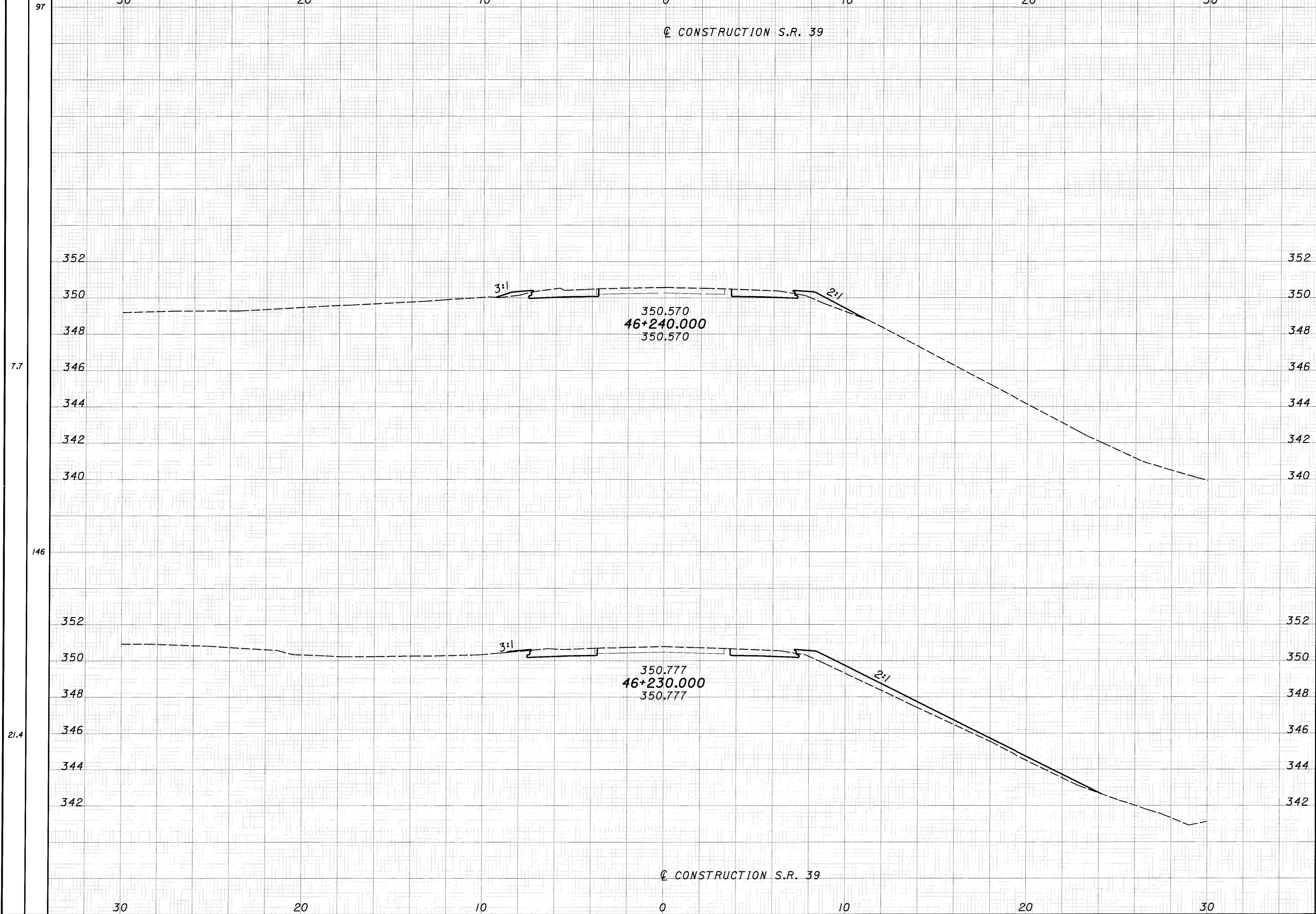
HOL - 39 - 46.140

450 SHEET TOTAL

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

SEEDING
END SQ.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED SKW CHECKED C/W



END	AREA	VOLUME	END	AREA	VOLUME
CUT	FILL	CUT	FILL	CUT	FILL
28	1.21	28	29	28	29
56	4.62	56	45	56	45

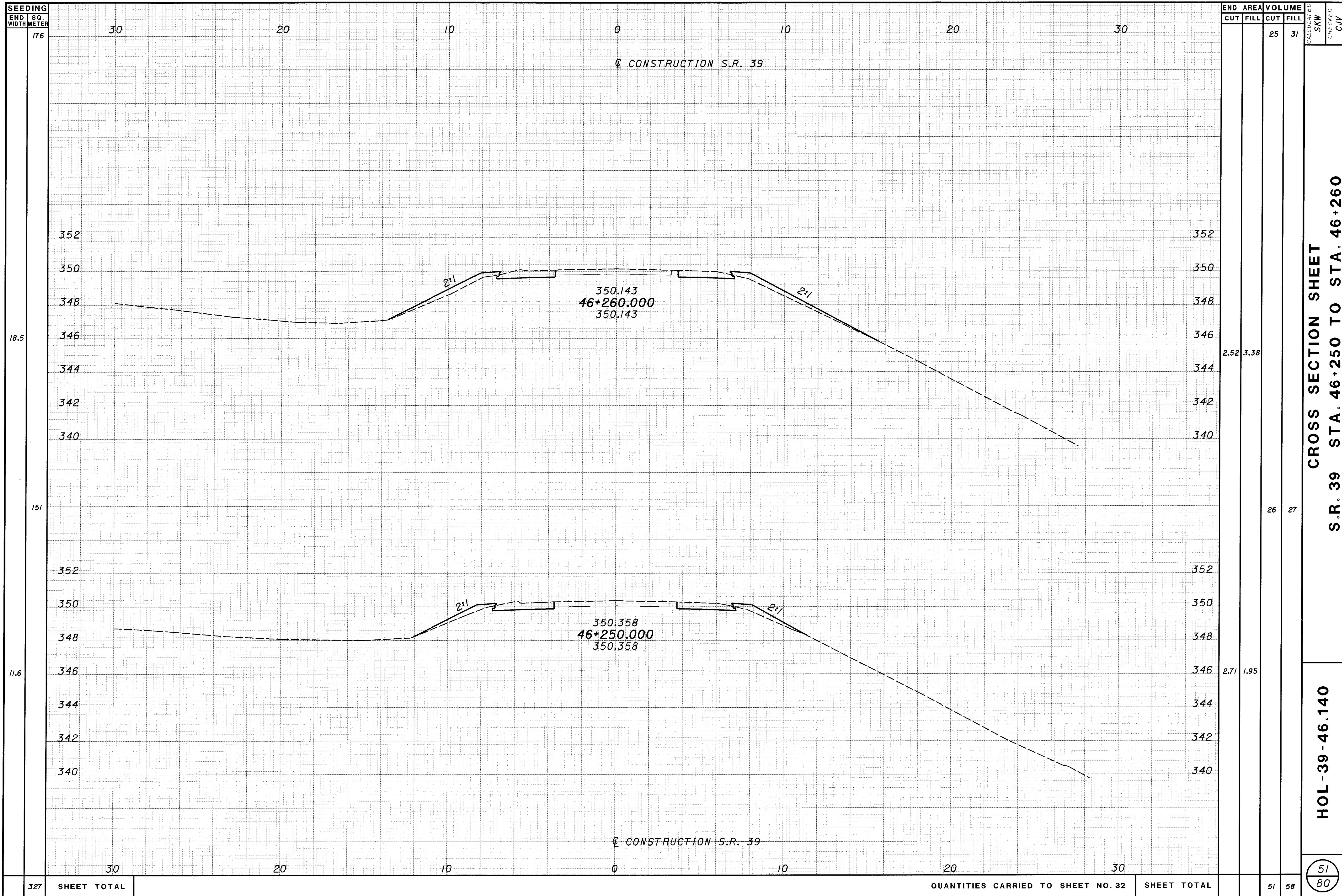
CROSS SECTION SHEET
S.R. 39 STA. 46+230 TO STA. 46+240

HOL - 39 - 46.140

50
80

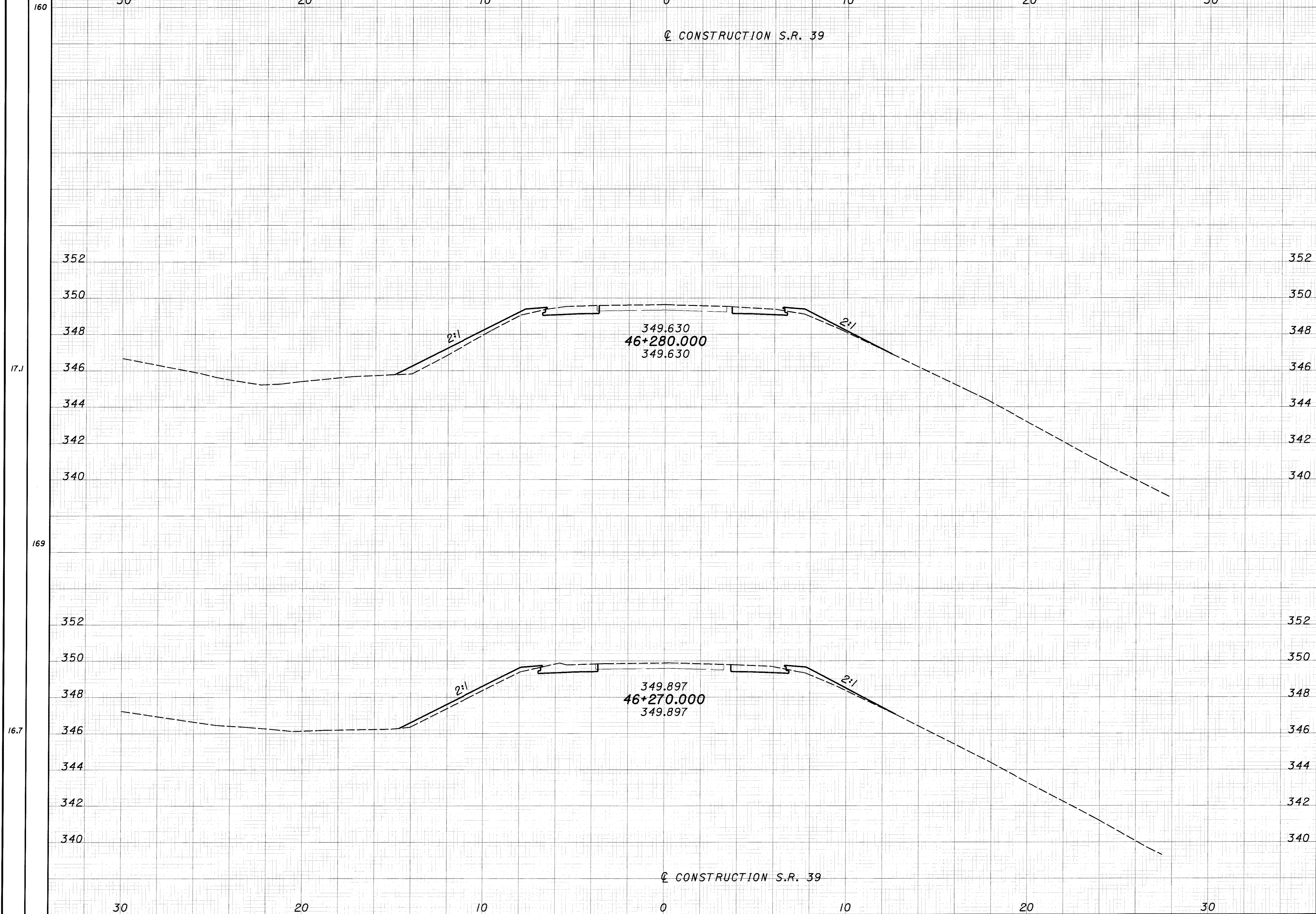
97
7.7
146
21.4

243 SHEET TOTAL QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL



SEEDING
END SQ.
WIDTH METER

END AREA
CUT FILL
VOLUME
CUT FILL
CALCULATED
SKW
CHECKED
CJV



160
17.1
169
16.7

END AREA	VOLUME	CALCULATED	CHECKED
CUT	FILL	CUT	FILL
22	29	2.22	3.18
23	30	2.43	2.72

CROSS SECTION SHEET
S.R. 39 STA. 46+270 TO STA. 46+280

HOL - 39 - 46.140

52
80

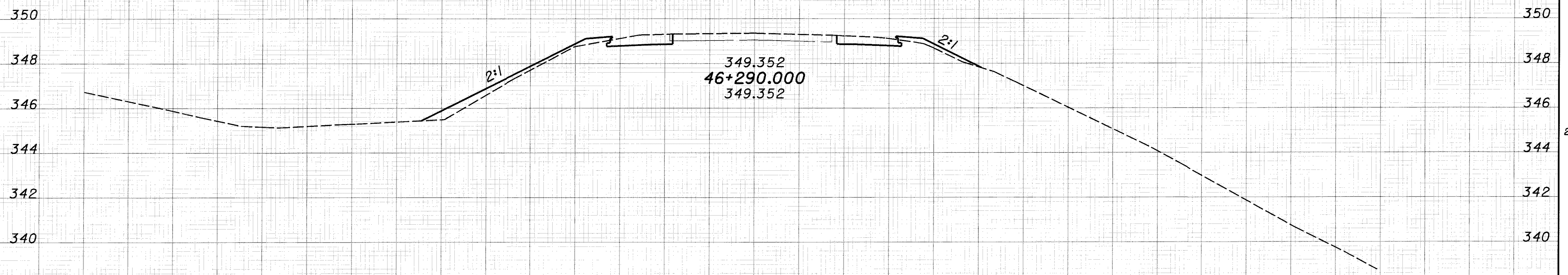
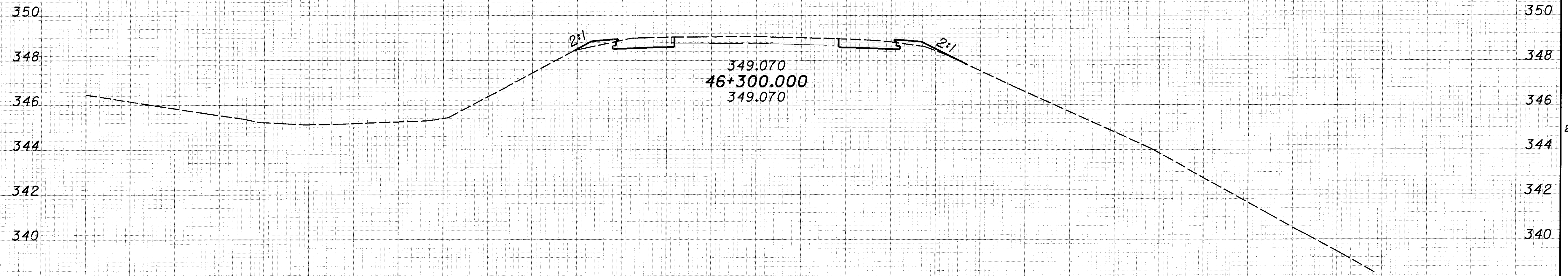
329	SHEET TOTAL	QUANTITIES CARRIED TO SHEET NO. 32	SHEET TOTAL	45	59
-----	-------------	------------------------------------	-------------	----	----

SEEDING
END SQ.
WIDTH METER

END AREA
CUT FILL
VOLUME
CUT FILL
CALCULATED
SKW
CHECKED
CJV

30 20 10 0 10 20 30

CONSTRUCTION S.R. 39



CONSTRUCTION S.R. 39

30 20 10 0 10 20 30

170 SHEET TOTAL

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

41 22

CROSS SECTION SHEET
S.R. 39 STA. 46+290 TO STA. 46+300

HOL-39-46.140

53
80

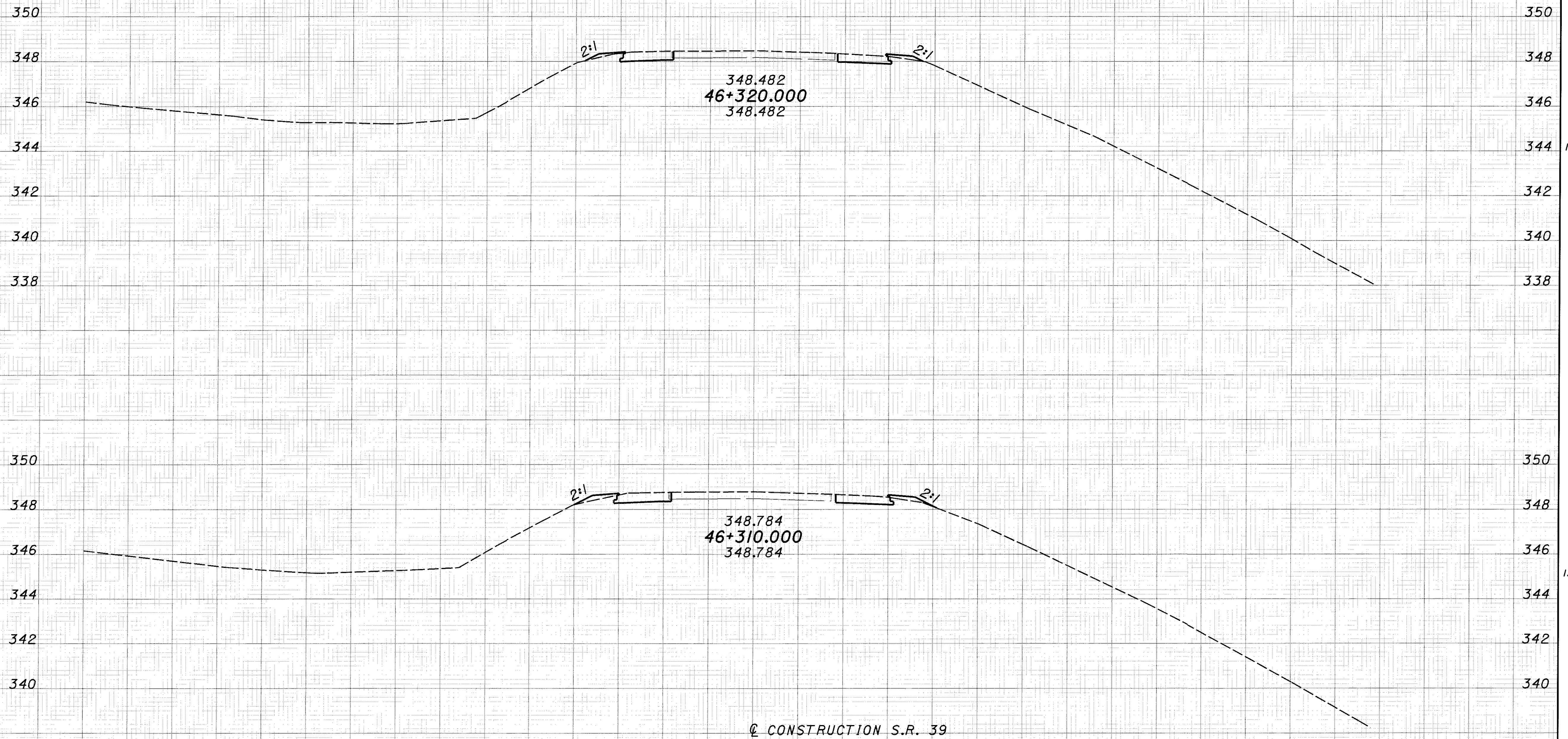
SEEDING
END SQ.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED SKW CHECKED C/JV

48
4.8
52
5.6
100

30 20 10 0 10 20 30

☉ CONSTRUCTION S.R. 39



348.482
46+320.000
348.482

348.784
46+310.000
348.784

☉ CONSTRUCTION S.R. 39

30 20 10 0 10 20 30

17	3	1.72	0.34
18	4	1.88	0.52
35	7		

CROSS SECTION SHEET
S.R. 39 STA. 46+310 TO STA. 46+320

HOL - 39 - 46.140

54
80

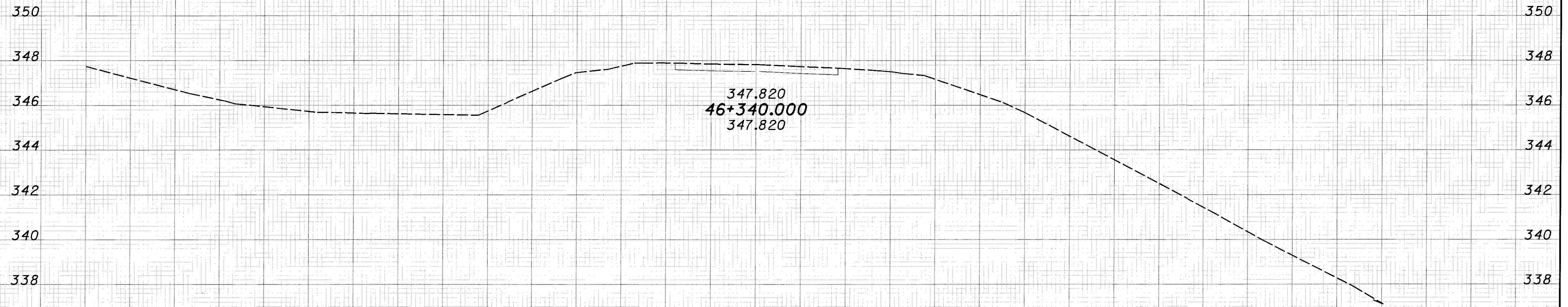
QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

SEEDING
END SQ.
WIDTH METER

END AREA
CUT FILL
VOLUME
CUT FILL
CALCULATED
SKW
CHECKED
CJV

30 20 10 0 10 20 30

CONSTRUCTION S.R. 39



350
348
346
344
342
340
338

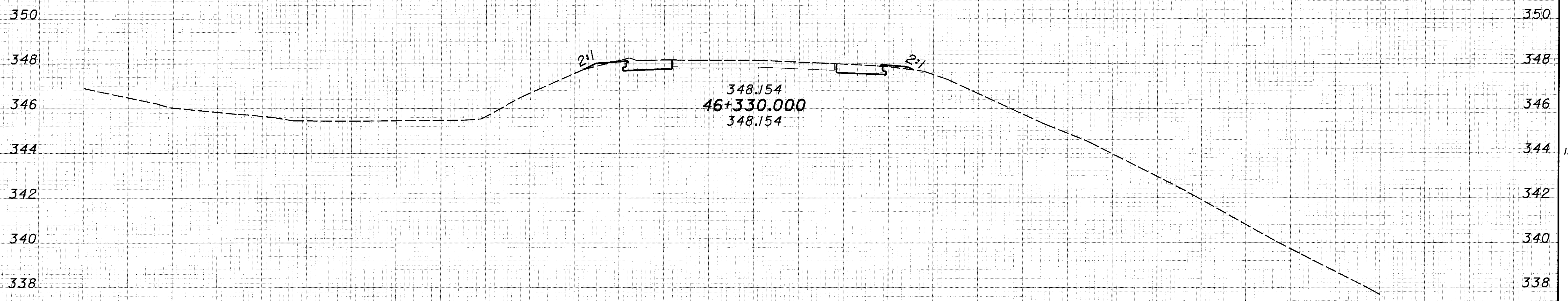
0 0

9 1

CROSS SECTION SHEET
S.R. 39 STA. 46+330 TO STA. 46+340

0

24



350
348
346
344
342
340
338

1.75 0.19

HOL - 39 - 46.140

4.8

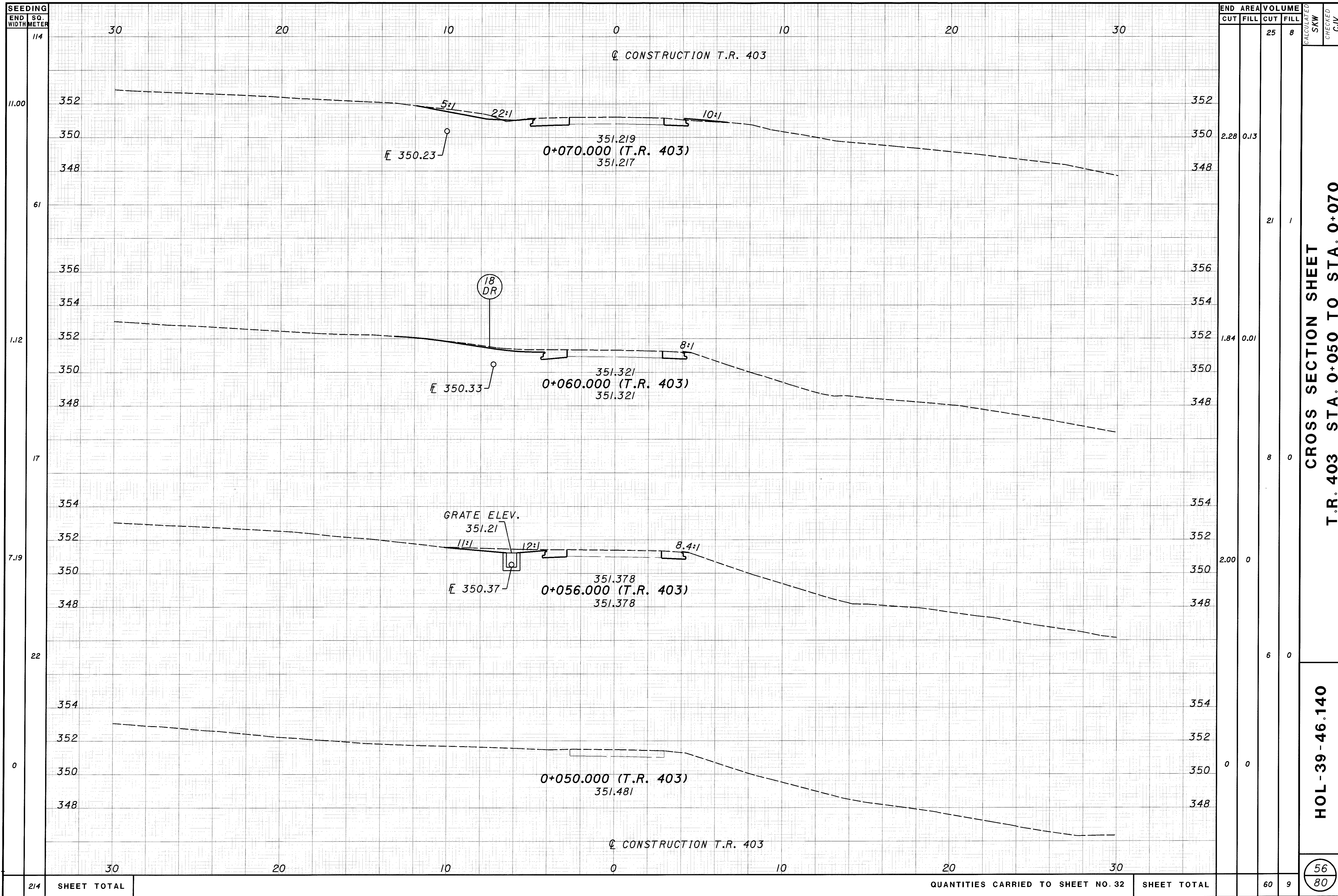
30 20 10 0 10 20 30

24 SHEET TOTAL

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

9 1

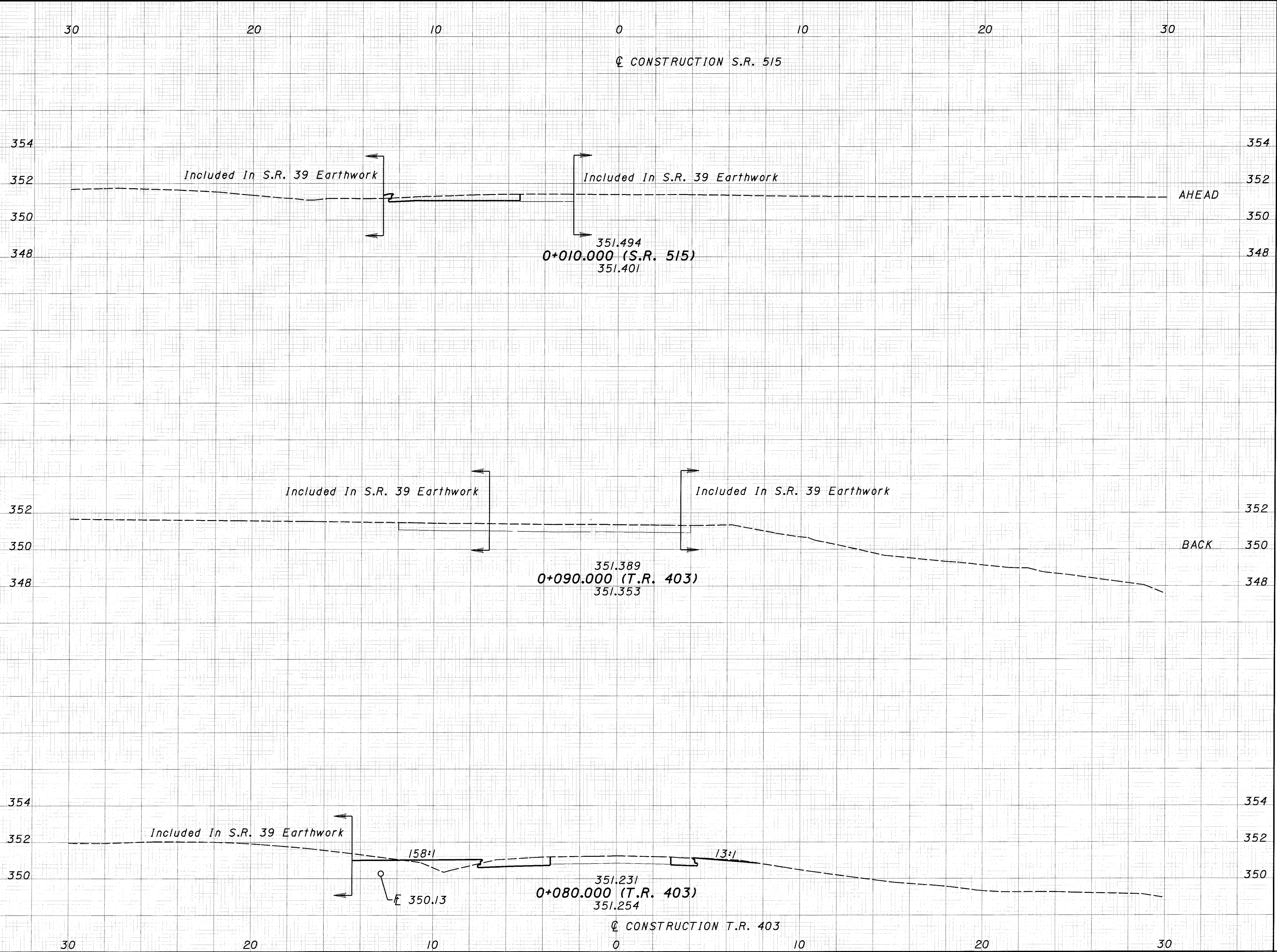
55
80



SEEDING
END SQ.
WIDTH METER

END AREA
CUT FILL
VOLUME
CUT FILL
CALCULATED
SKW
CHECKED
CJV

39
0.55
0
59
11.89
98



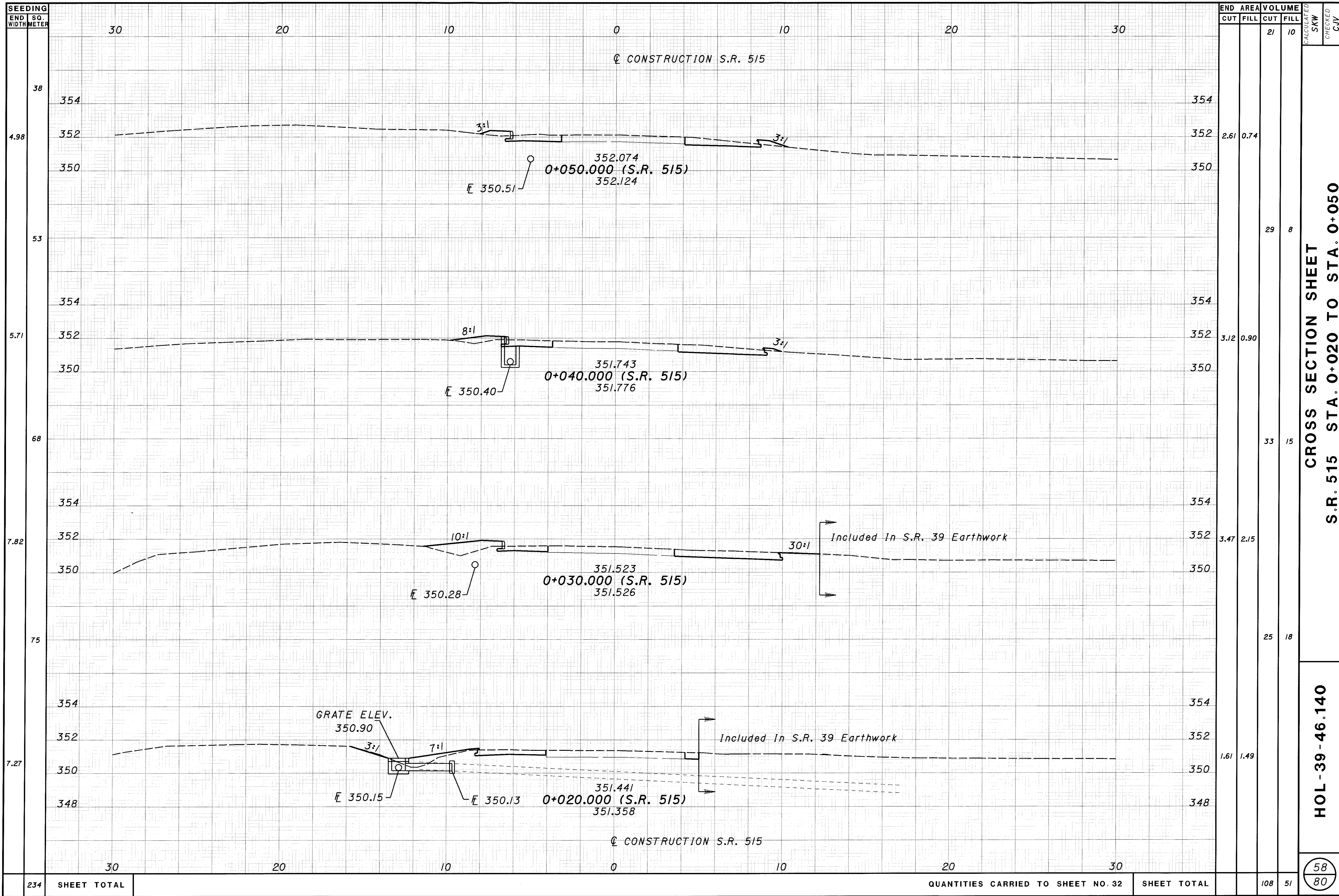
END AREA	VOLUME	CALCULATED	CHECKED
CUT	FILL	CUT	FILL
1.96	0.09	18	8
0	0	0	0
2.79	1.48	14	7
32	15	57	80

CROSS SECTION SHEET
T.R. 403 STA. 0+080 TO S.R. 515 STA. 0+010

HOL-39-46.140

57
80

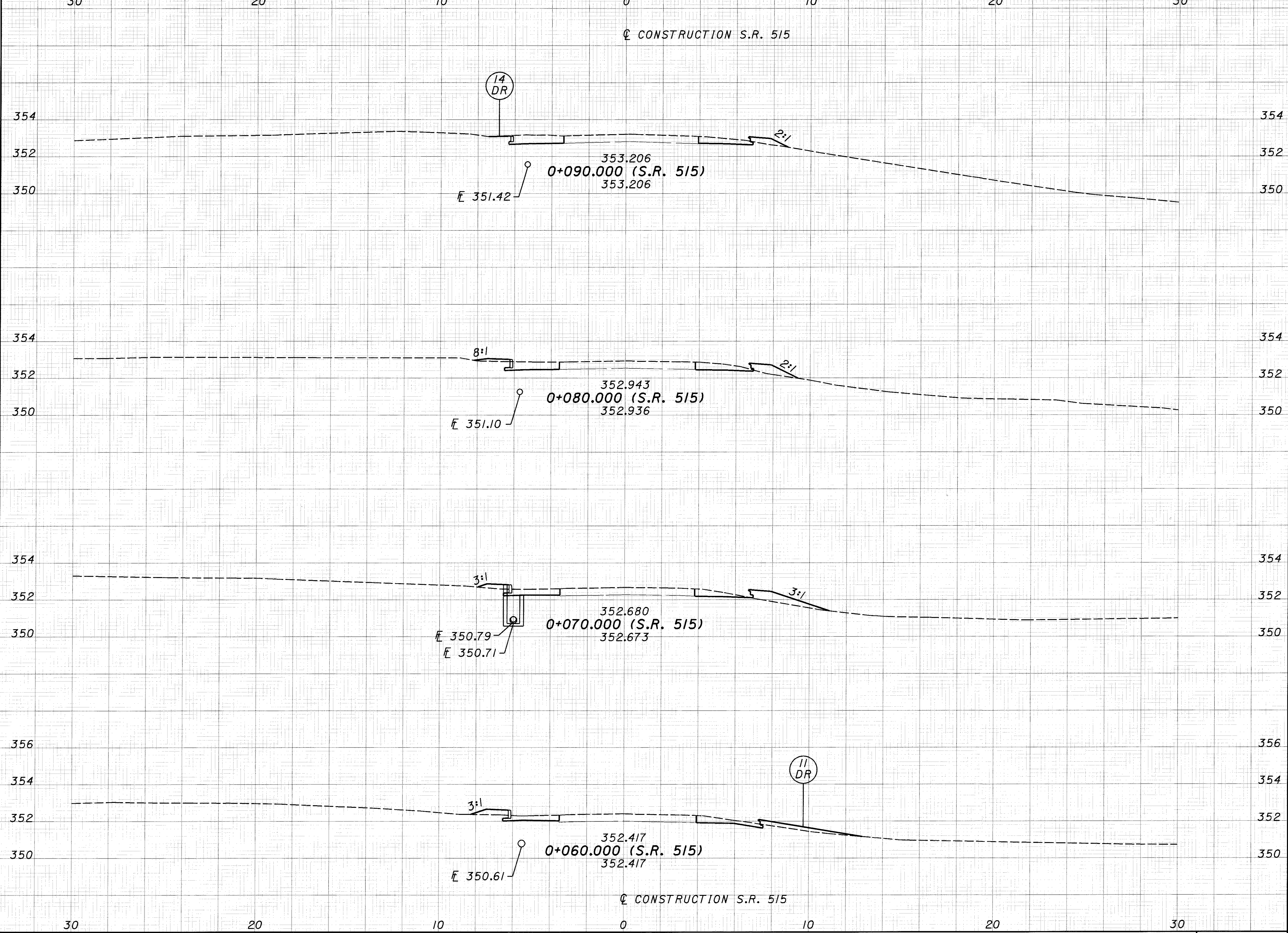
SHEET TOTAL QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL



SEEDING
END SQ.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
SKW
CHECKED
CJV

38
2.87
44
6.00
67
7.49
51
2.71
200



END CUT	AREA FILL	VOLUME CUT	VOLUME FILL	SKW	CJV
2.15	0.48	21	6		
2.06	1.06	21	8		
1.60	1.68	18	14		
1.66	1.35	16	15		
76	43				

CROSS SECTION SHEET
S.R. 515 STA. 0+060 TO STA. 0+090

HOL-39-46.140

59
80

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

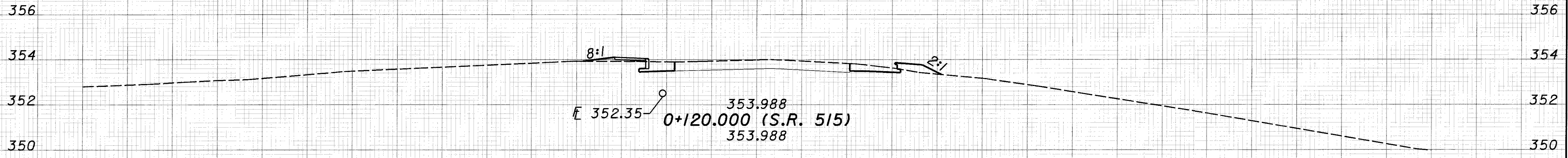
SEEDING
END SQ.
WIDTH METER

END AREA
CUT FILL
VOLUME
CUT FILL
CALCULATED
SKW
CHECKED
CJV

30 20 10 0 10 20 30

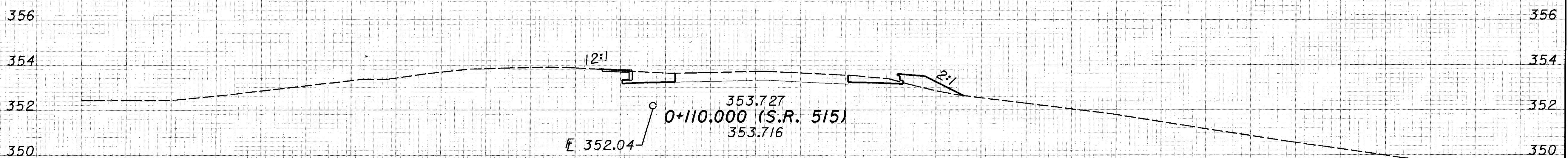
☉ CONSTRUCTION S.R. 515

4.79



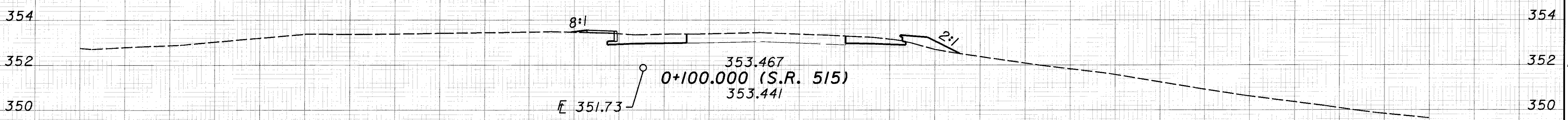
1.10 0.71

46



1.54 0.95

46



2.03 0.77

4.74

☉ CONSTRUCTION S.R. 515

30 20 10 0 10 20 30

123 SHEET TOTAL

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

43 21

CROSS SECTION SHEET
S.R. 515 STA. 0+100 TO STA. 0+120

HOL-39-46.140

60
80

SEEDING
END SO.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED SKW
CHECKED C/V

30

20

10

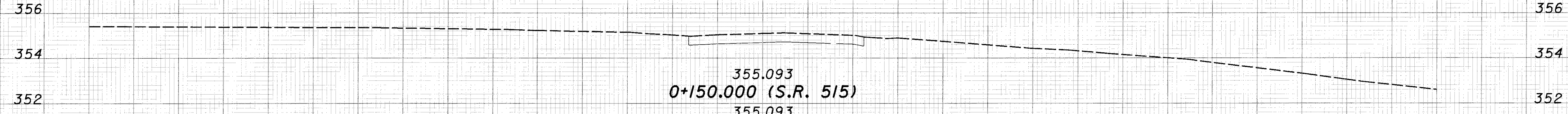
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10

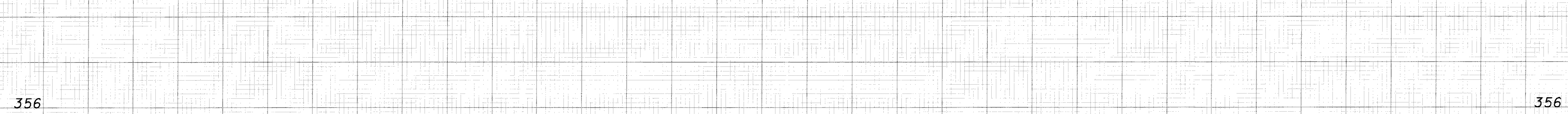
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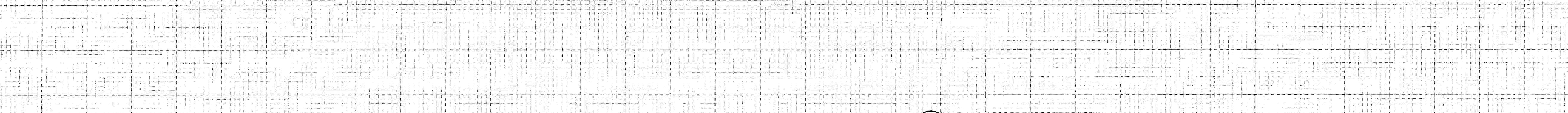
CONSTRUCTION S.R. 515



355.093
0+150.000 (S.R. 515)
355.093



12:1
352.98
354.607
0+140.000 (S.R. 515)
354.625
13:1



12:1
352.67
354.240
0+130.000 (S.R. 515)
354.271
16
DR

CONSTRUCTION S.R. 515

30

20

10

0

10

20

30

43 SHEET TOTAL

QUANTITIES CARRIED TO SHEET NO. 32 SHEET TOTAL

18 0

CROSS SECTION SHEET
S.R. 515 STA. 0+130 TO STA. 0+150

HOL-39-46.140

61
80

SEEDING
END SO.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
C.V.
CHECKED
SKW

30

20

10

0

10

20

30

352

352

350

350

348

348

354

354

352

352

350

350

348

348

354

354

352

352

350

350

348

348

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354

354

352

352

350

350

348

348

30

20

10

0

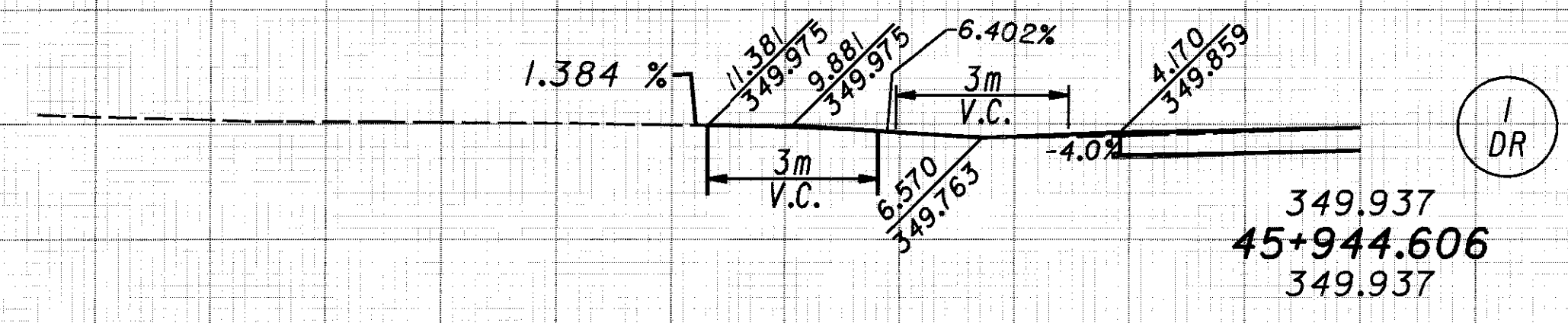
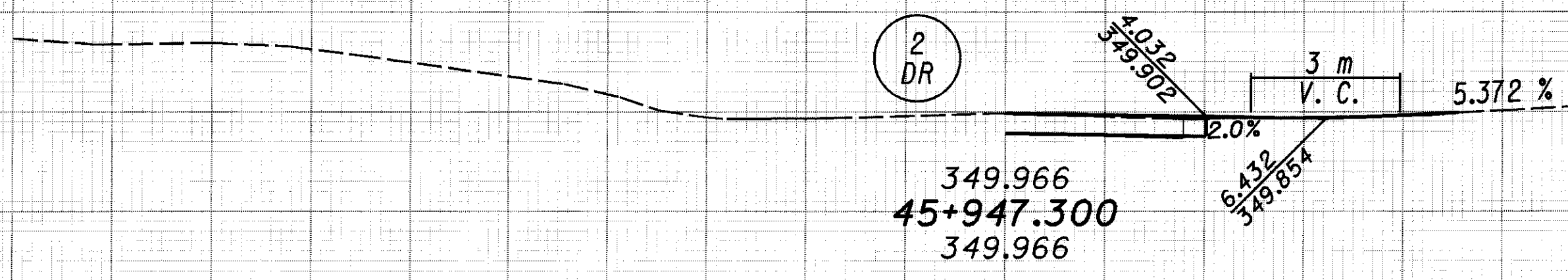
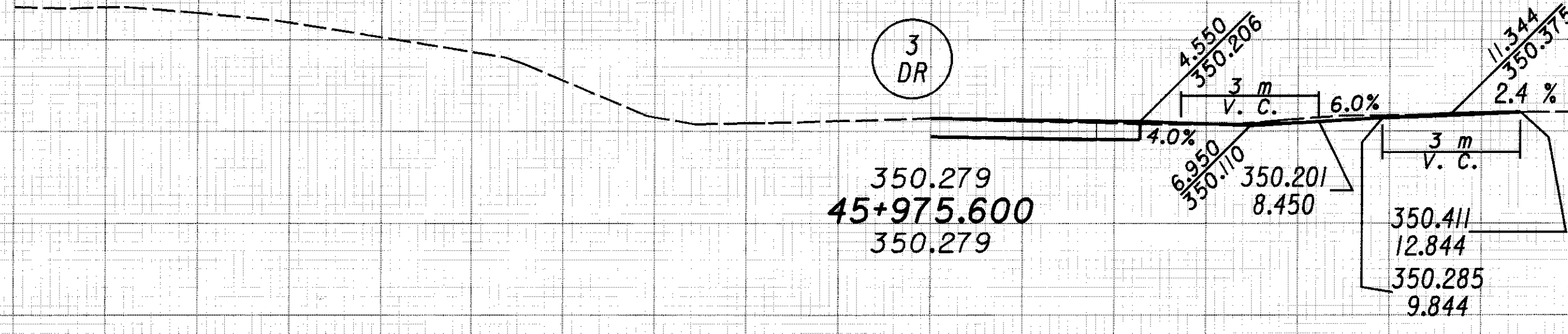
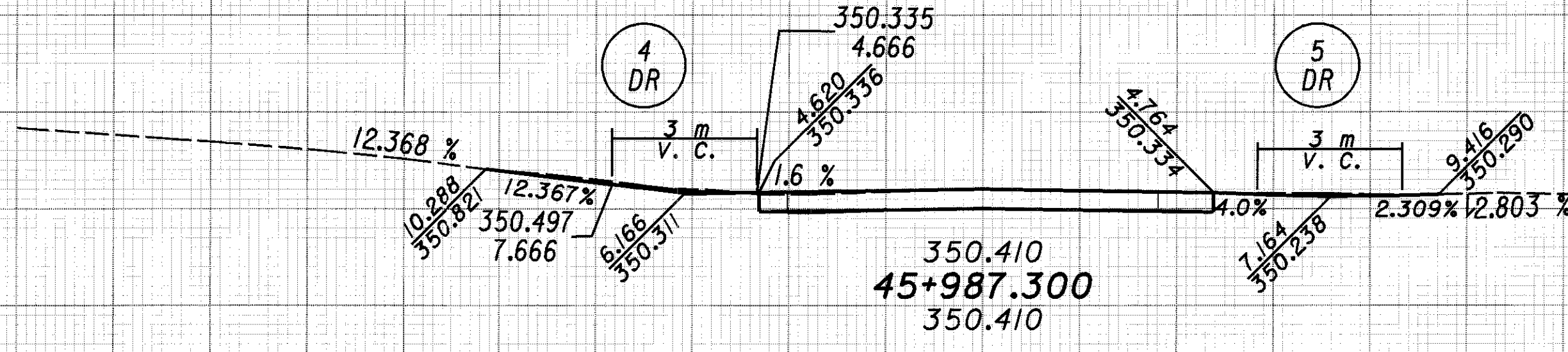
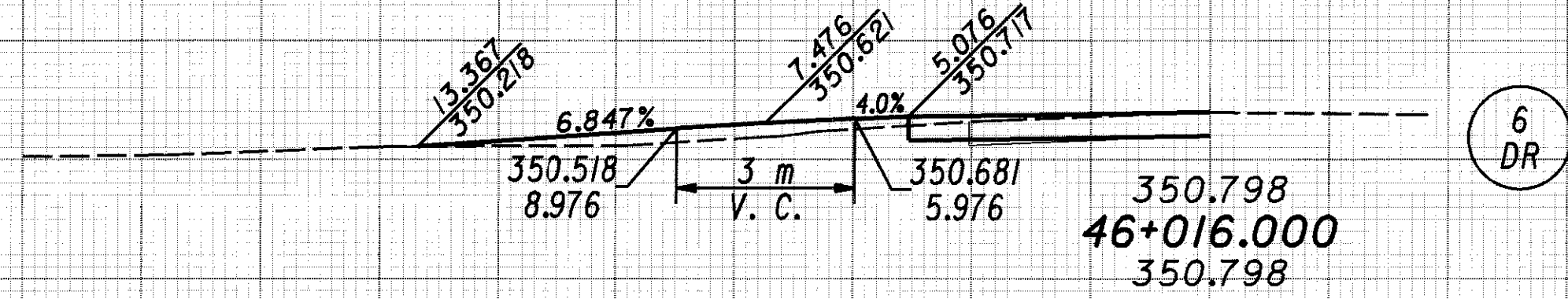
10

20

30

SHEET TOTAL

SHEET TOTAL



DRIVEWAY PROFILES - S.R. 39

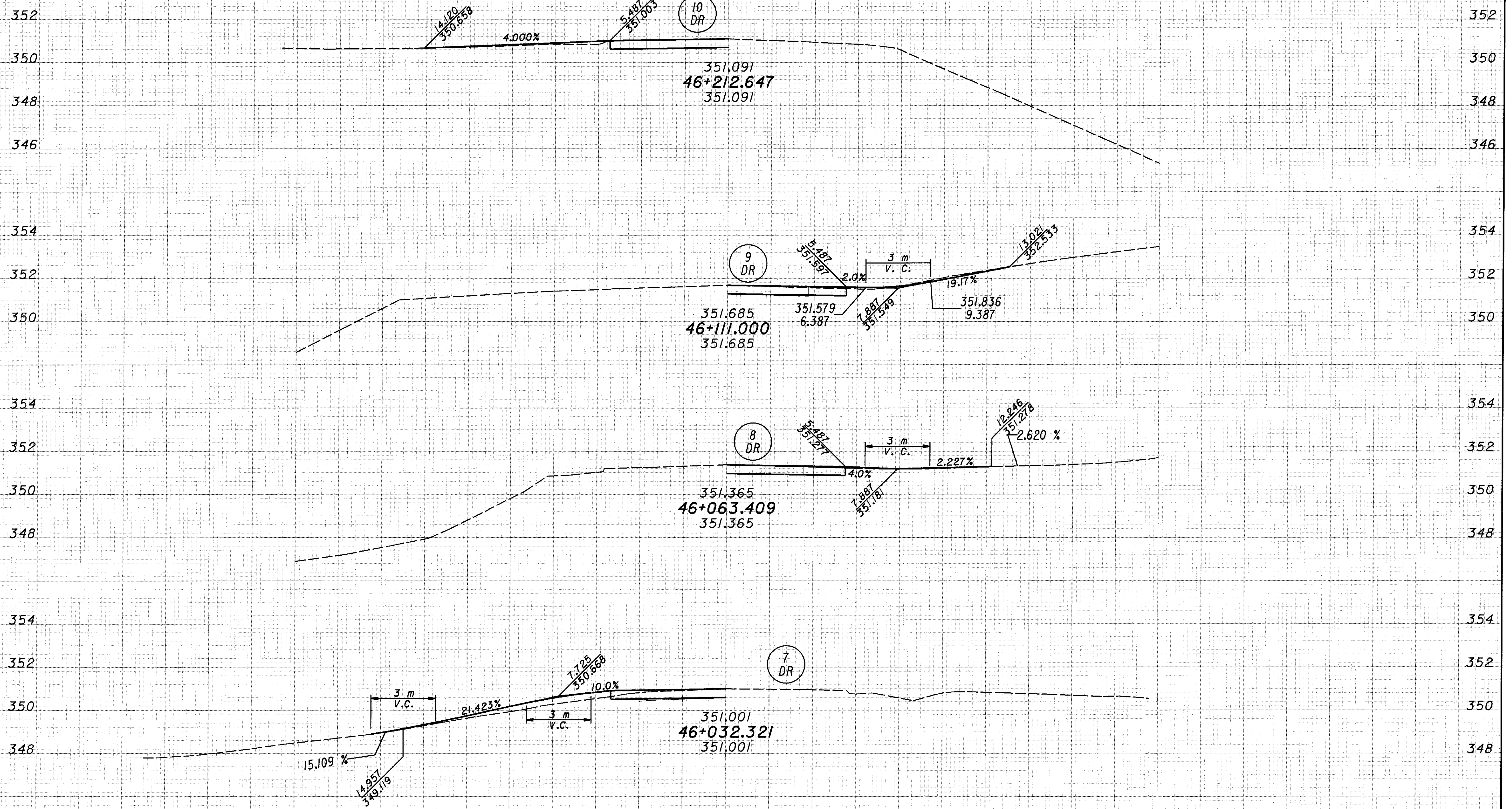
HOL - 39 - 46.140

62
80

SEEDING
END SQ.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
C.V.
CHECKED
SKW

30 20 10 0 10 20 30



30 20 10 0 10 20 30

SHEET TOTAL

SHEET TOTAL

DRIVEWAY PROFILES - S.R. 39

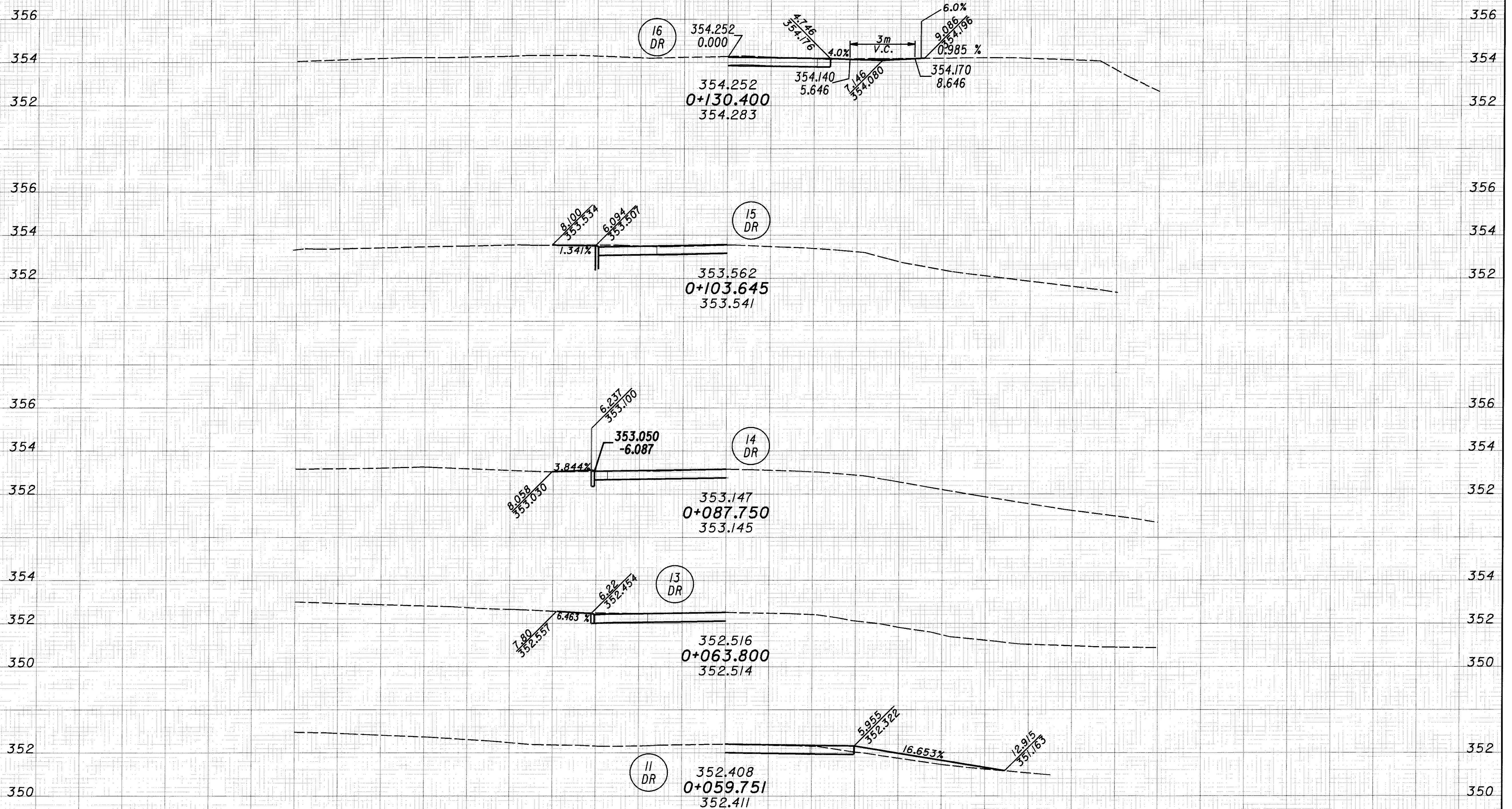
HOL - 39 - 46.140

63
80

SEEDING
END SO.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
C.V. CHECKED
SKW

30 20 10 0 10 20 30



30 20 10 0 10 20 30
SHEET TOTAL SHEET TOTAL

DRIVEWAY PROFILES - S.R. 515

HOL - 39 - 46.140

64
80

SEEDING
END SQ.
WIDTH METER

END AREA VOLUME
CUT FILL CUT FILL
CALCULATED
CJV
CHECKED
SKW

30

20

10

0

10

20

30

354

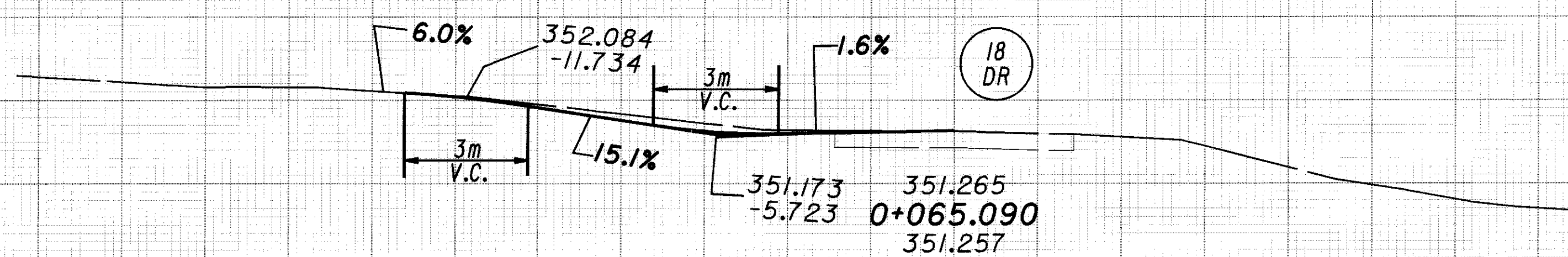
354

352

352

350

350



354

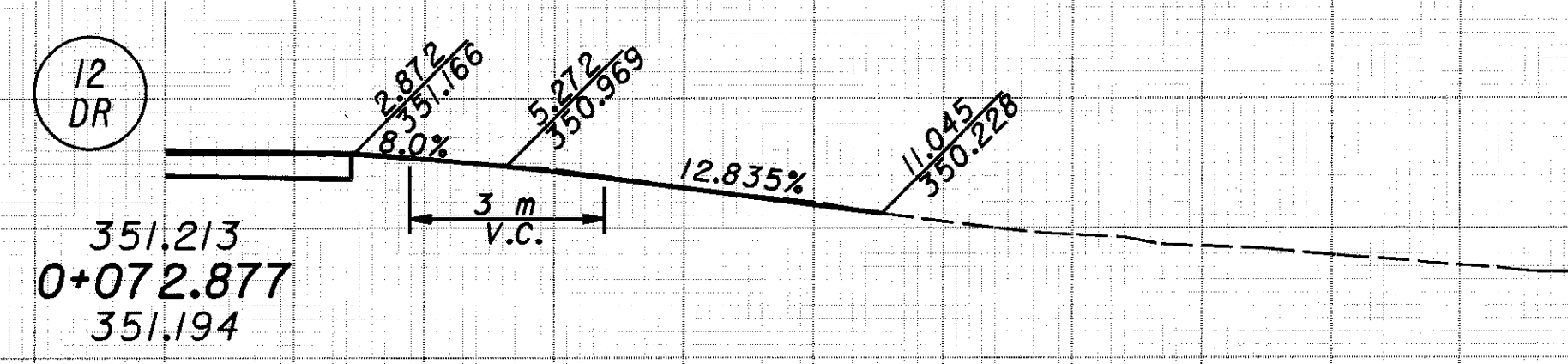
354

352

352

350

350



30

20

10

0

10

20

30

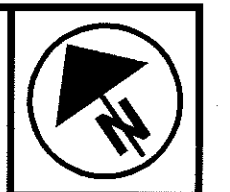
SHEET TOTAL

SHEET TOTAL

DRIVEWAY PROFILES - T.R. 403

HOL-39-46.140

65
80



HORIZONTAL SCALE IN METERS

CHECKED SKW
CALCULATED CJV

INTERSECTION DETAIL

HOL - 39 - 46.140

66
80

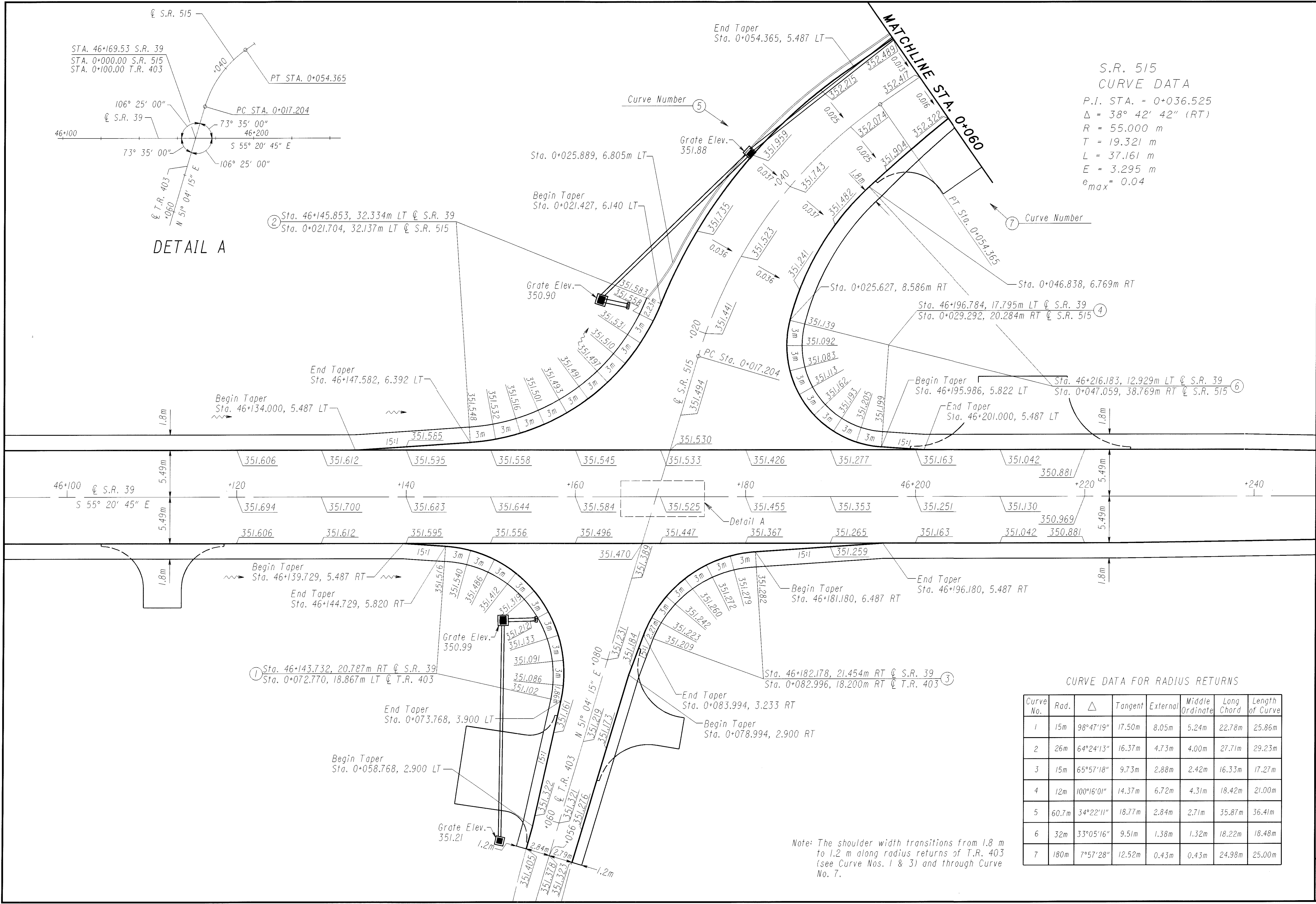
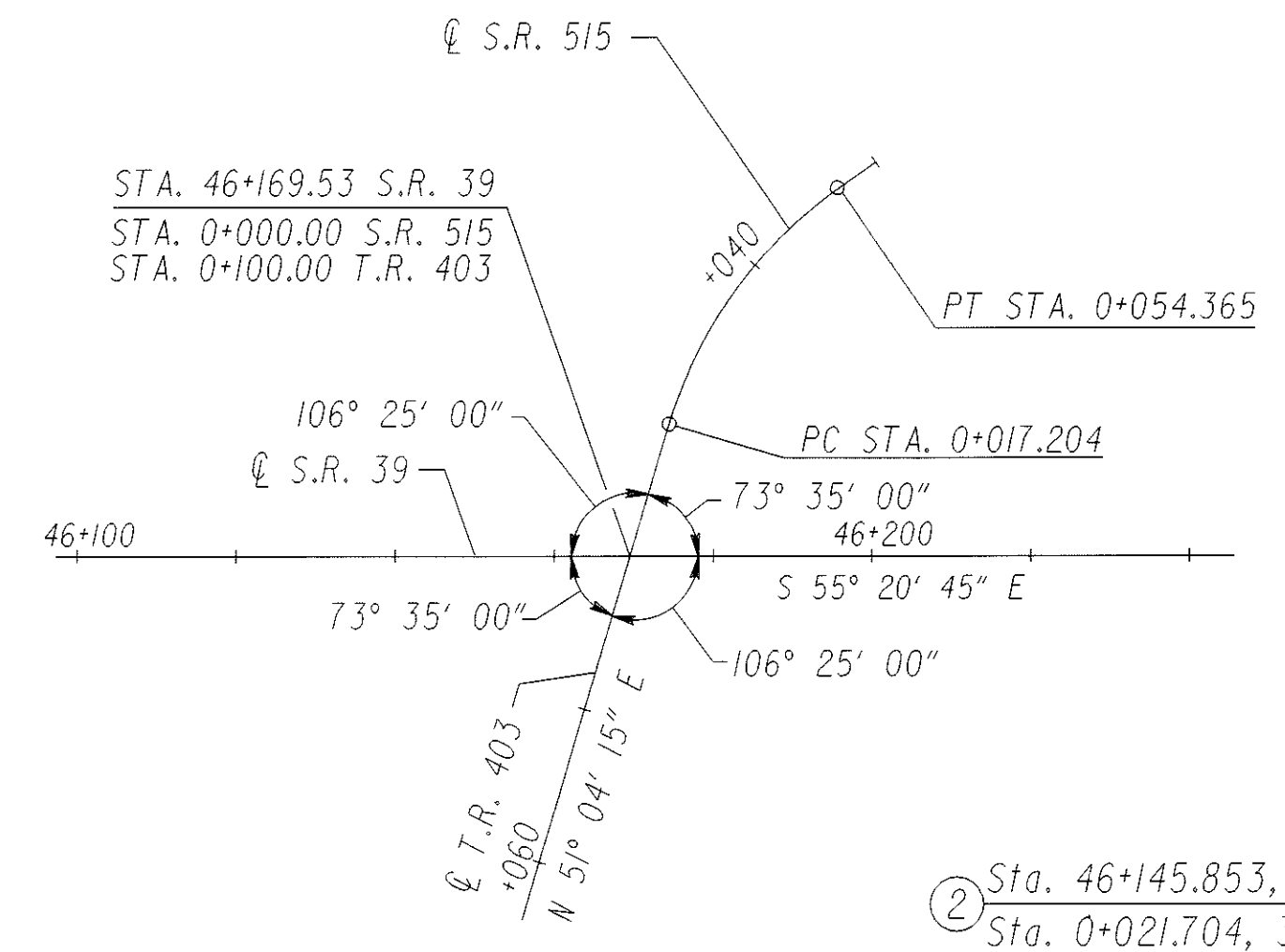
S.R. 515
CURVE DATA
P.I. STA. = 0+036.525
 $\Delta = 38^\circ 42' 42''$ (RT)
R = 55.000 m
T = 19.321 m
L = 37.161 m
E = 3.295 m
 $e_{max} = 0.04$

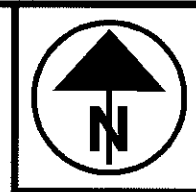
CURVE DATA FOR RADIUS RETURNS

Curve No.	Rad.	Δ	Tangent	External	Middle Ordinate	Long Chord	Length of Curve
1	15m	98°47'19"	17.50m	8.05m	5.24m	22.78m	25.86m
2	26m	64°24'13"	16.37m	4.73m	4.00m	27.71m	29.23m
3	15m	65°57'18"	9.73m	2.88m	2.42m	16.33m	17.27m
4	12m	100°16'01"	14.37m	6.72m	4.31m	18.42m	21.00m
5	60.7m	34°22'11"	18.77m	2.84m	2.71m	35.87m	36.41m
6	32m	33°05'16"	9.51m	1.38m	1.32m	18.22m	18.48m
7	180m	7°57'28"	12.52m	0.43m	0.43m	24.98m	25.00m

Note: The shoulder width transitions from 1.8 m to 1.2 m along radius returns of T.R. 403 (see Curve Nos. 1 & 3) and through Curve No. 7.

DETAIL A





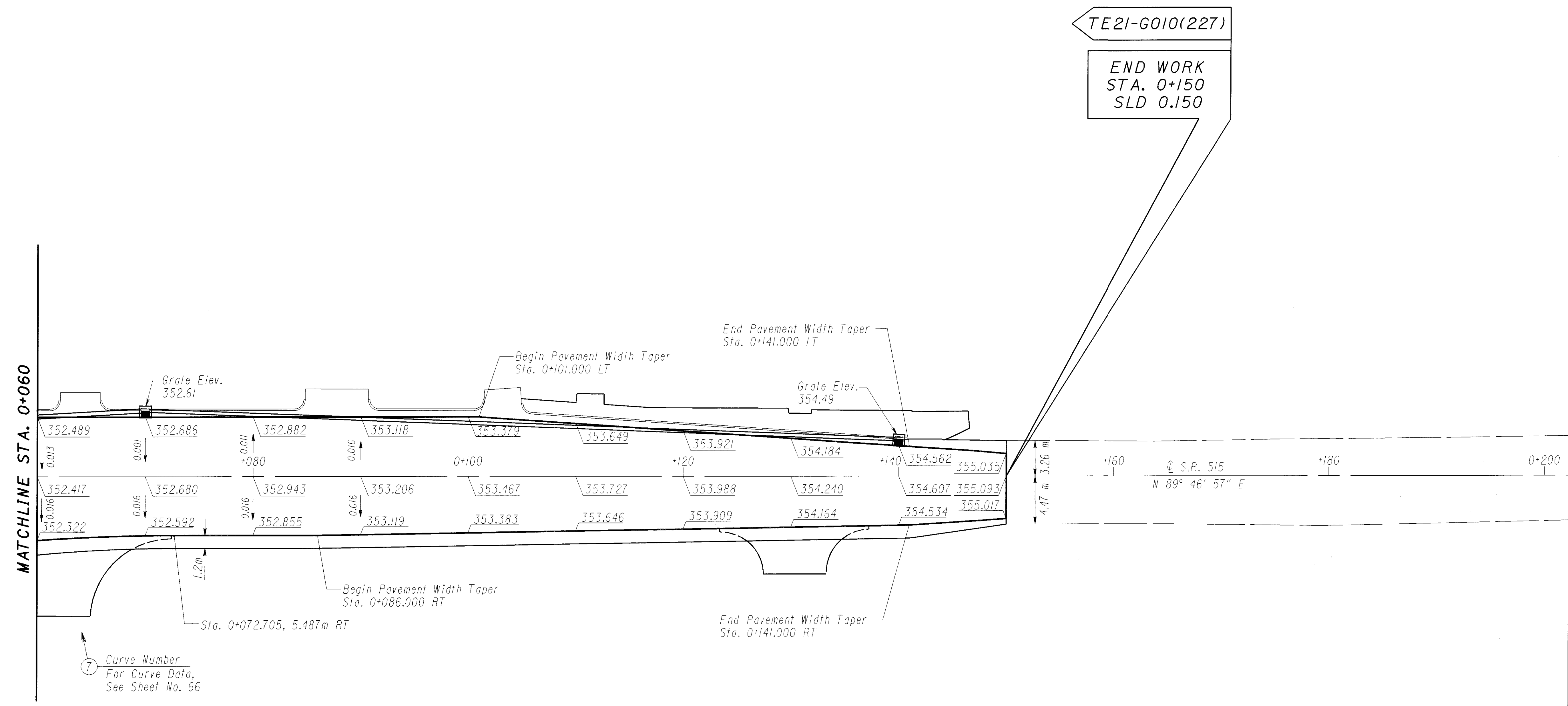
HORIZONTAL SCALE IN METERS

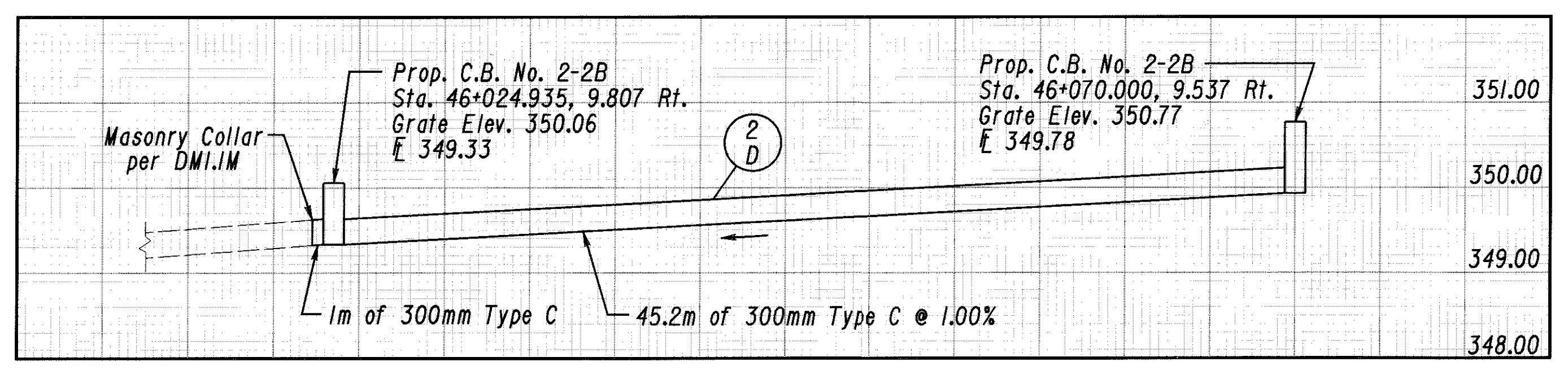
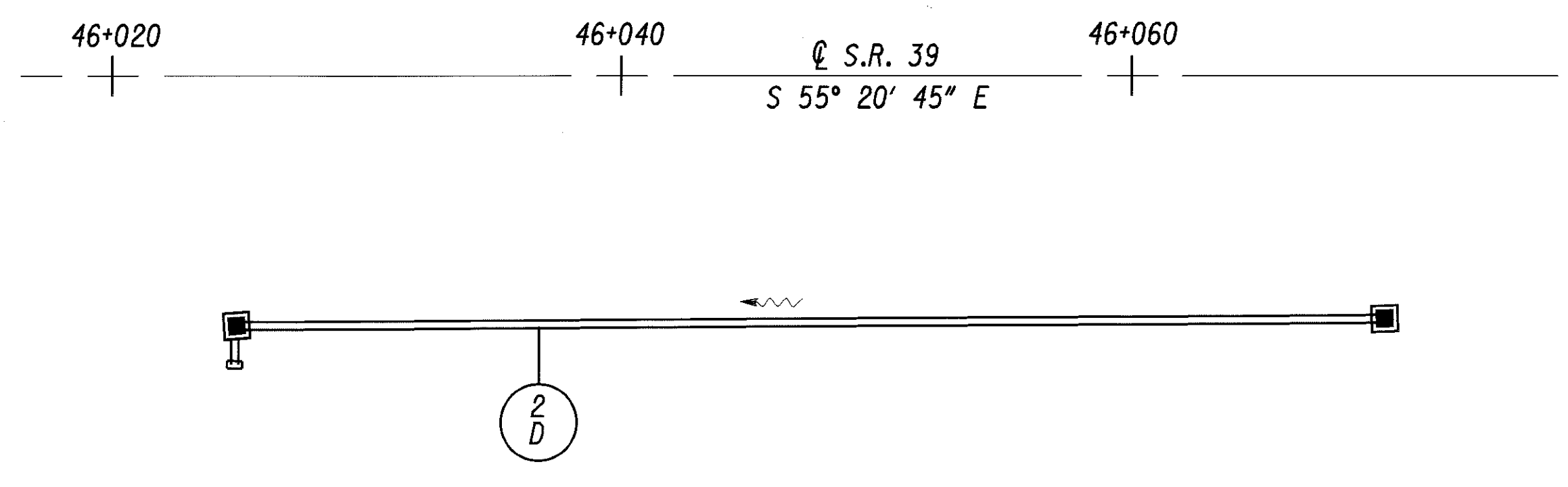
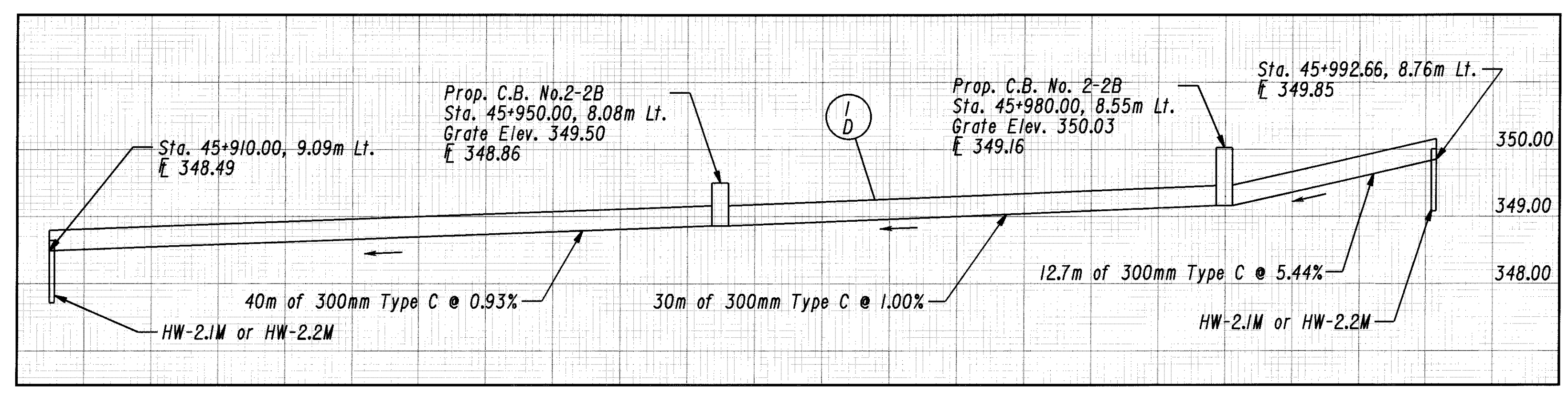
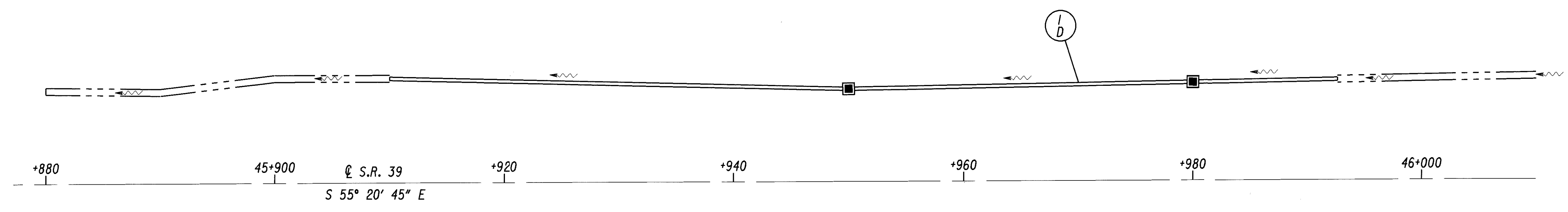
CALCULATED SKW CHECKED CJV

INTERSECTION DETAIL

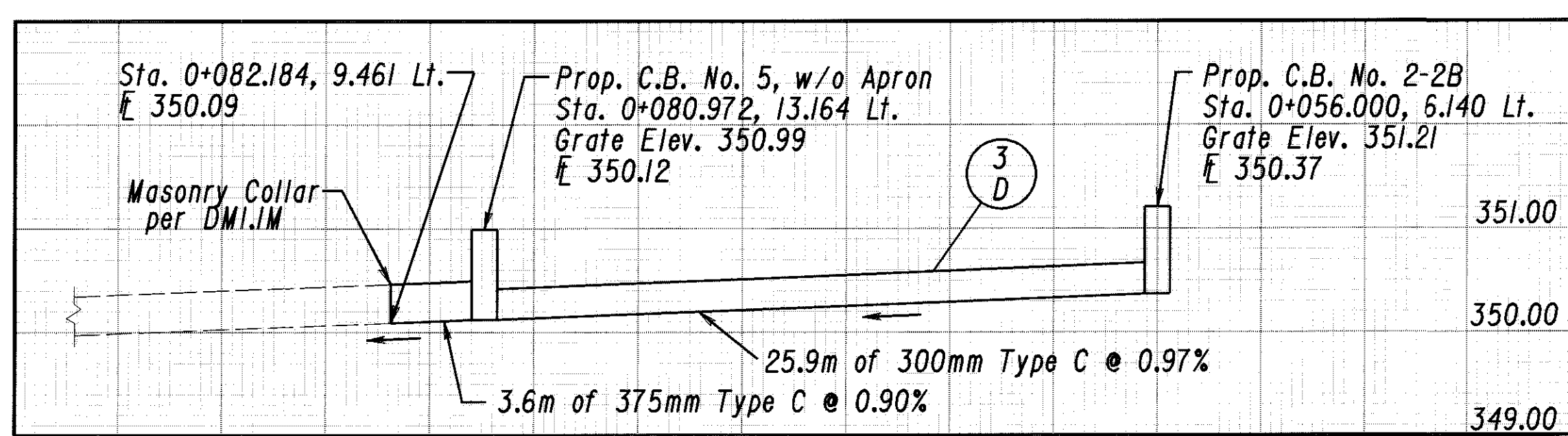
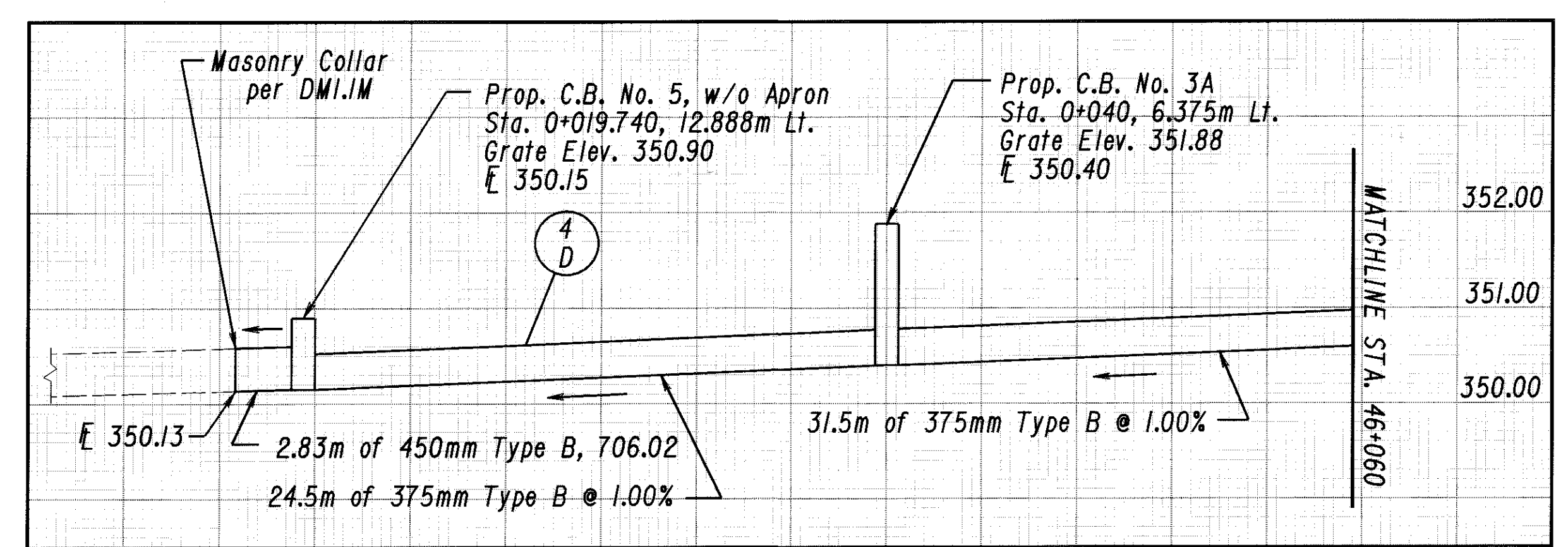
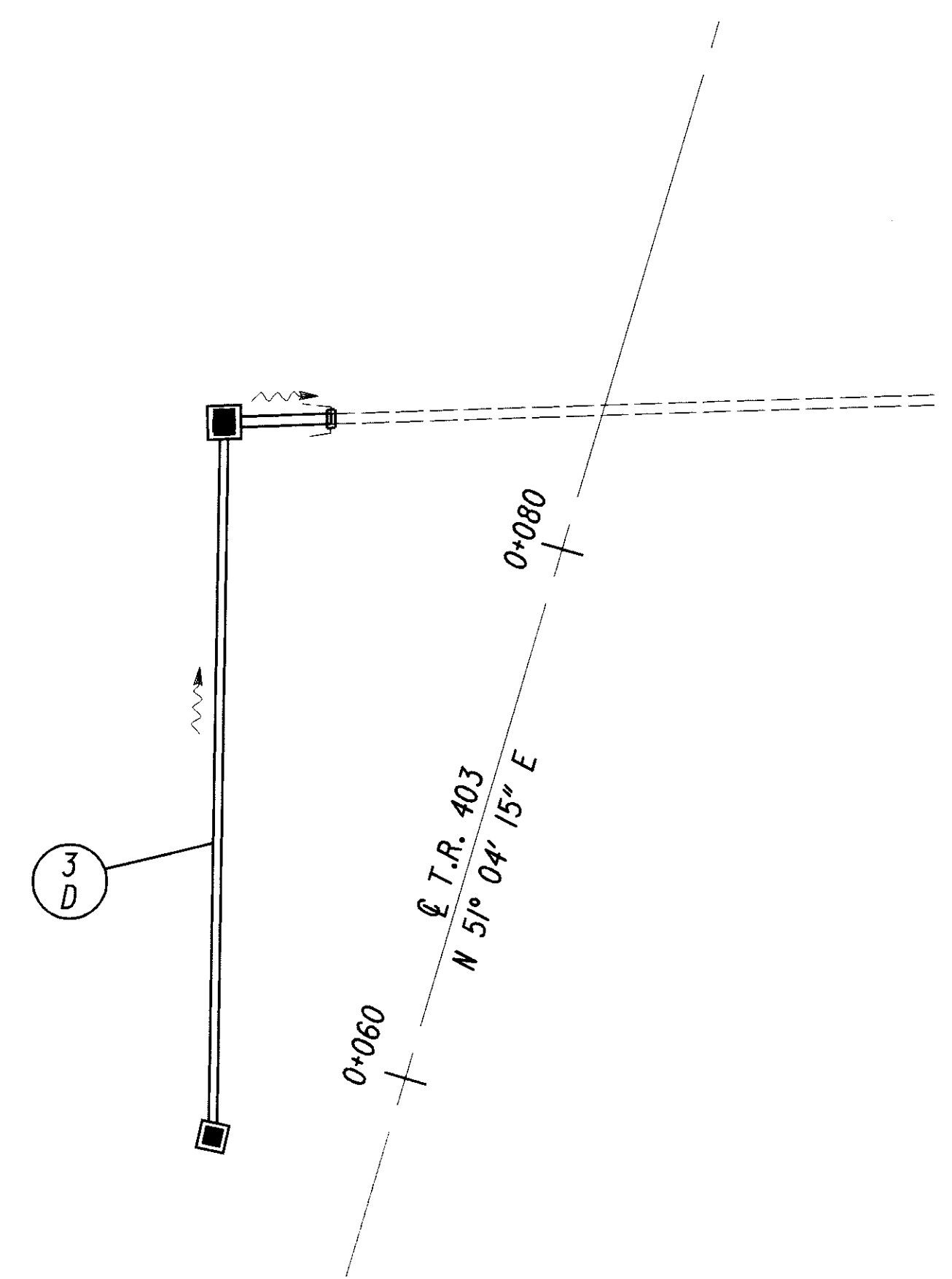
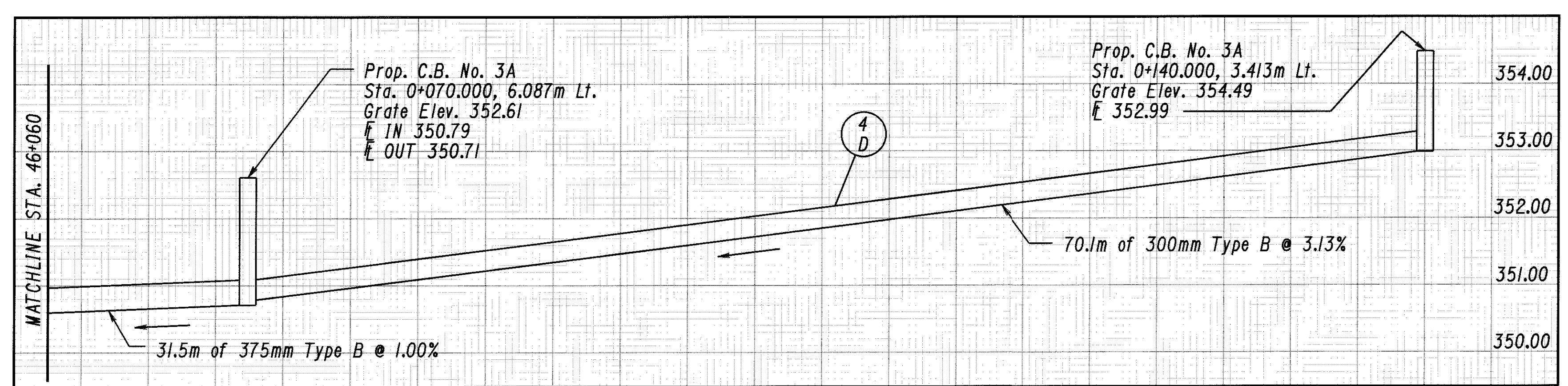
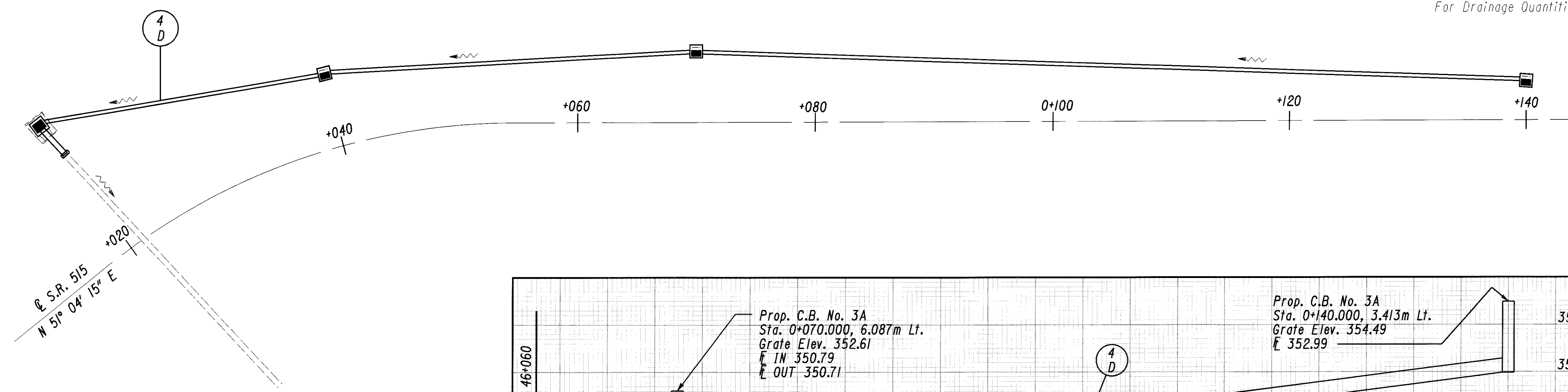
HOL-39-46.140

67/80





DRAINAGE QUANTITIES												
REF. NO.	PLAN SHEET NO.	STATION TO STATION	SIDE	ITEM 603					ITEM 604			ITEM 602
				300MM CONDUIT, TYPE B	375MM CONDUIT, TYPE B	450MM CONDUIT, TYPE B, 706.02	300MM CONDUIT, TYPE C	375MM CONDUIT, TYPE C	CATCH BASIN NO. 5 W/O APRON	CATCH BASIN NO. 2-2B	CATCH BASIN NO. 3A	CONCRETE MASONRY
				METER	METER	METER	METER	METER	EACH	EACH	EACH	CU. METER
1-D	34, 35	45+910.00 to 45+992.66 S.R. 39	LT.				82.7			2		0.34
2-D	35	46+024.935 to 46+070.00 S.R. 39	RT.				46.2			2		
3-D	36	0+056.00 to 0+080.972 T.R. 403	LT.				25.9	3.6	1	1	3	
4-D	36, 38	0+019.740 to 0+140.00 S.R. 515	LT.	70.1	56	2.83			1			
TOTALS - Carried to General Summary				70.1	56	2.83	154.8	3.6	2	4	3	0.34



ROUTE	SIDE	STATION		REFERENCE NO.	ITEM 642, TYPE 1								
		FROM	TO		EDGE LINE	DOUBLE SOLID CENTER LINE	CHANNELIZING LINE	YELLOW TRANSVERSE LINE	STOP LINE	LANE ARROWS	WORD ON PAVEMENT		
					Kilometer	Kilometer	Meter	Meter	Meter	Each	Each		
S.R. 39	Lt.	45+892.0	46+161.1	EL-1	0.269								
	Rt.	45+892.0	46+155.6	EL-2	0.264								
	Cntr	45+892.0	45+927.0	CL-1		0.035							
	Cntr	45+927.0	46+041.9	CL-2 / T-1		0.231		80.4					
	1.83m Lt.	46+041.9	46+146.9	CL-3		0.105			3.7				
	1.83m Rt.	46+041.9	46+153.9	CH-1			112.0		8.9				
	Cntr	46+048.4	46+142.9							3	2		
	Lt.	46+187.1	46+360.0	EL-3	0.173								
	Rt.	46+174.3	46+360.0	EL-4	0.186								
	1.83m Lt.	46+188.0	46+223.8	CH-2			35.8		7.8				
	1.83m Rt.	46+193.8	46+223.8	CL-4		0.030			3.7				
	Cntr	46+197.8	46+221.3							2	1		
Cntr	46+223.8	46+325.0	CL-5 / T-2		0.203		56.9						
Cntr	46+325.0	46+360.0	CL-6		0.035								
S.R. 515	Lt.	0+008.5	0+176.0	EL-5	0.168								
	Rt.	0+015.3	0+176.0	EL-6	0.161								
	1.83m Lt.	0+011.5	0+086.0	CH-3			74.5		9.6				
	1.83m Rt.	0+020.0	0+086.0	CL-7		0.066			3.7				
	Cntr	0+024.0	0+079.5							3	2		
	Cntr	0+086.0	0+141.0	CL-8 / T-3		0.111		24.0					
Cntr	0+141.0	0+176.0	CL-9		0.035								
T.R. 403	Rt.	0+091.9	0+056.0	EL-7	0.036								
	Lt.	0+083.9	0+056.0	EL-8	0.028								
	Cntr	0+088.1						6.2					
TOTALS (Carried to General Summary)					1.29	0.85		222.3	161.3		43.6	8	5

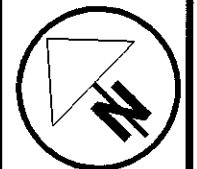
ROUTE	STATION		ITEM 621				REMARKS <i>All Raised Pavement Markers will be placed in accordance with Std. Drwg. TC-65.12M, dated 11-1-95</i>	
	FROM	TO	LENGTH	SPACING	2-WAY YELLOW	2-WAY WHITE/RED		
			Meter	Meter	Each	Each		
S.R. 39	45+892.0	45+927.0	35.0	24	2		Center line	
	45+927.0	46+041.9	114.9	24	10		Island	
	46+041.9	46+146.9	105.0	24	4		Center line	
	46+041.9	46+153.9	112.0	12		10	Channelizing line	
	46+188.0	46+223.8	35.8	12		3	Channelizing line	
	46+193.8	46+223.8	30.0	24	2		Center line	
	46+223.8	46+325.0	101.2	24	9		Island	
	46+325.0	46+360.0	35.0	24	2		Center line	
	S.R. 515	0+011.5	0+086.0	74.5	12		6	Channelizing line
		0+020.0	0+086.0	66.0	24	3		Center line
0+086.0		0+141.0	55.0	24	5		Island	
0+141.0		0+176.0	35.0	24	2		Center line	
Sub-Total					39	19		
TOTAL (Carried to General Summary)						58		

TEMPORARY PAVEMENT MARKING

Two applications: One on the 448 Intermediate Course, and one on the 448 Surface Course. The locations are the same as those shown in the tables above.

- Item 614, Temporary Edge Line, Class I - - - - - 2.58 Km
- Item 614, Temporary Center Line, Class I - - - - - 1.80 Km
- Item 614, Temporary Channelizing Line, Class I - - - - - 445 m
- Item 614, Temporary Lane Arrow, Class I - - - - - 16 Each

NOTE: Temporary pavement marking quantities are carried to the Maintenance of Traffic Sub-Summary.



HORIZONTAL SCALE IN METERS




CALCULATED
JM
CHECKED
CJV

SIGNING PLAN AND PAVEMENT MARKING DETAILS
STA. 45+870 TO STA. 46+100

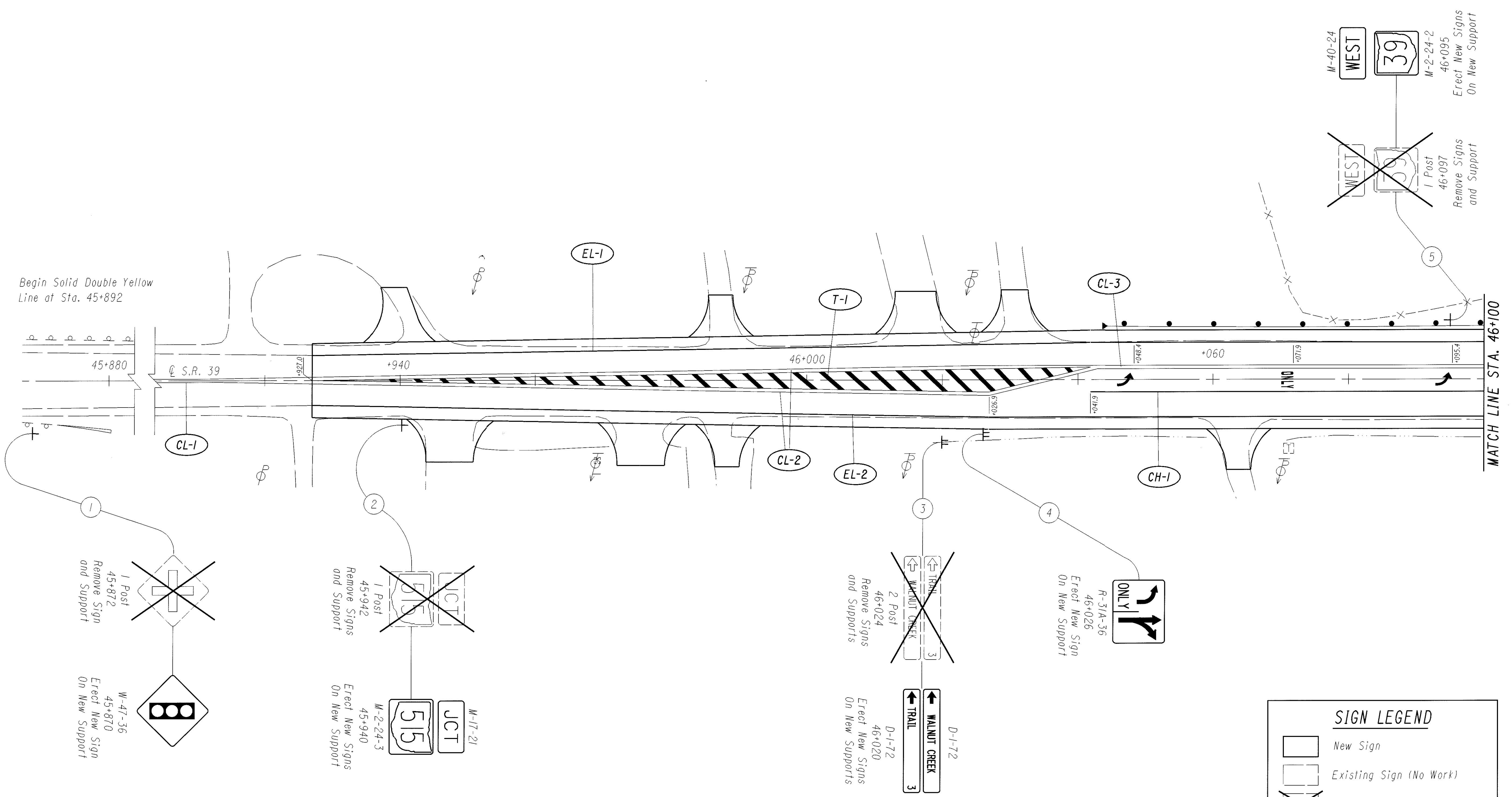
HOL-39-46.140

72
80

SIGN LEGEND

-  New Sign
-  Existing Sign (No Work)
-  Existing Sign To Be Removed

For Signing Quantities, See Sheet No. 70
For Pavement Marking Quantities, See Sheet No. 71



1 Post
45+872
Remove Sign
and Support

W-47-36
45+870
Erect New Sign
On New Support

2 Post
45+942
Remove Signs
and Support

M-2-24-3
45+940
Erect New Signs
On New Support

3 Post
46+024
Remove Signs
and Supports

D-1-72
46+020
Erect New Signs
On New Supports

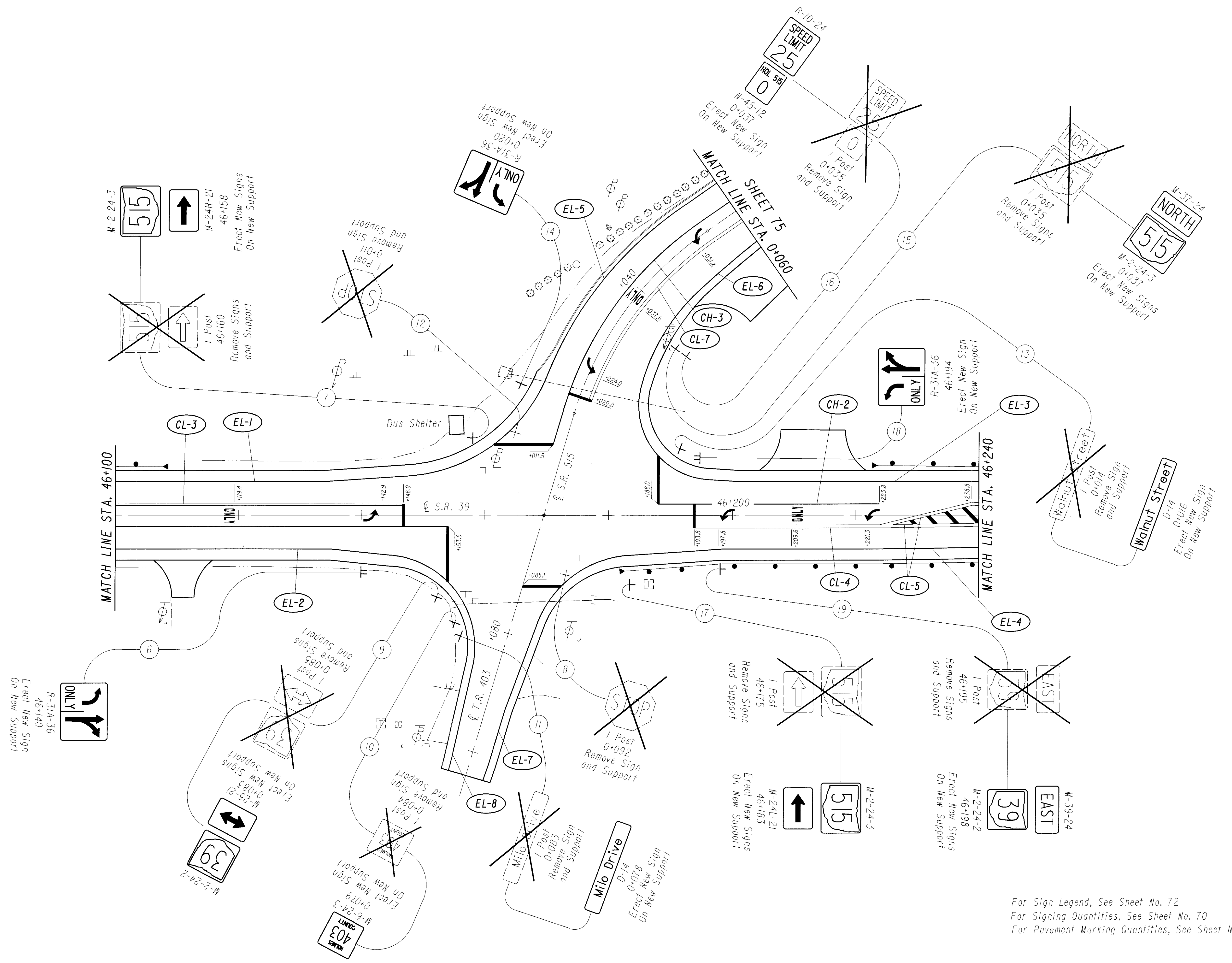
R-31A-36
46+026
Erect New Sign
On New Support

M-40-24
WEST
39
M-2-24-2
46+095
Erect New Signs
On New Support

1 Post
46+097
Remove Signs
and Support

Begin Solid Double Yellow Line at Sta. 45+892

MATCH LINE STA. 46+100

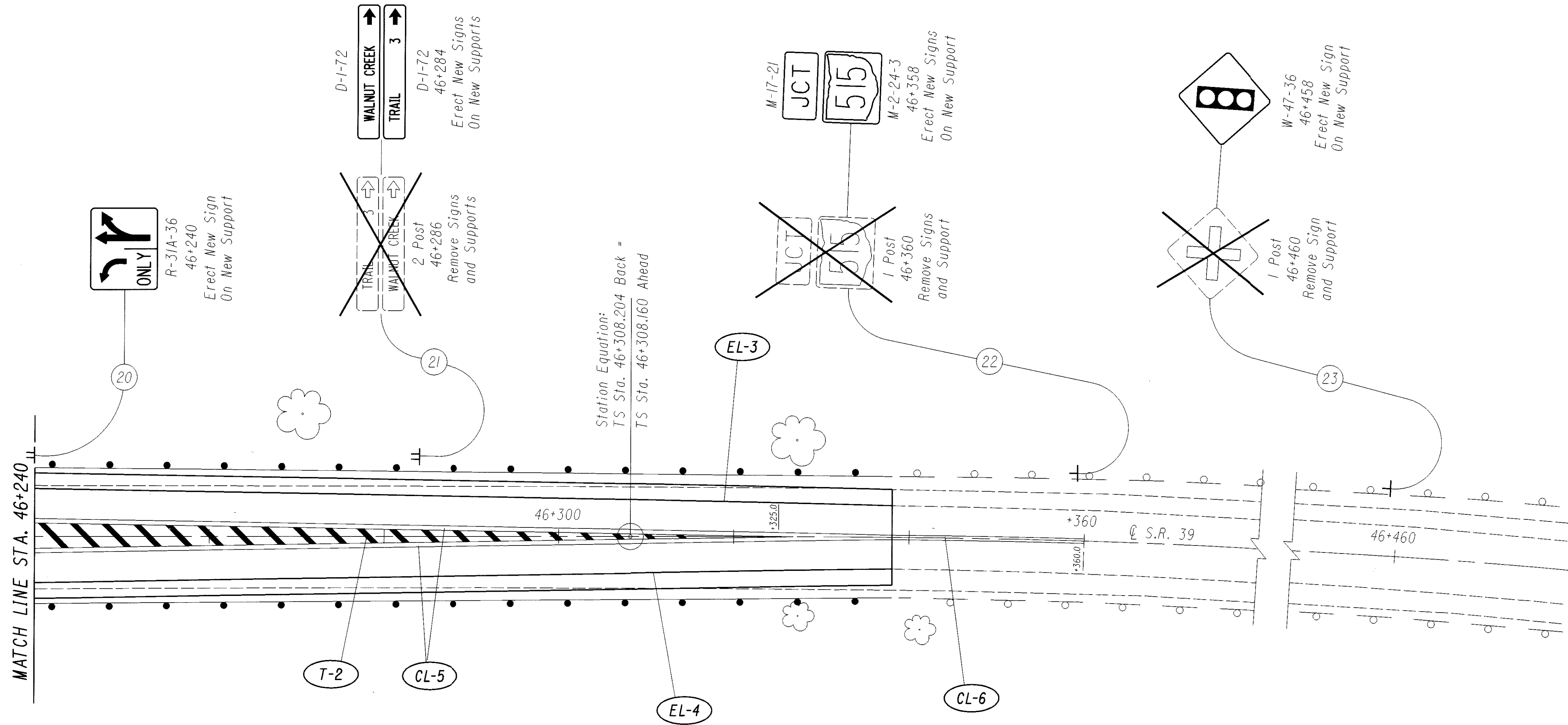


For Sign Legend, See Sheet No. 72
 For Signing Quantities, See Sheet No. 70
 For Pavement Marking Quantities, See Sheet No. 71

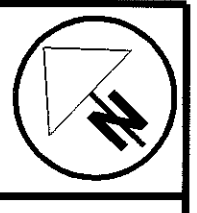
CALCULATED
 JM
 CHECKED
 CJV

**SIGNING PLAN AND PAVEMENT MARKING DETAILS
 INTERSECTION S.R. 39 AND S.R. 515**

HOL - 39 - 46.140



For Sign Legend, See Sheet No. 72
 For Signing Quantities, See Sheet No. 70
 For Pavement Marking Quantities, See Sheet No. 71

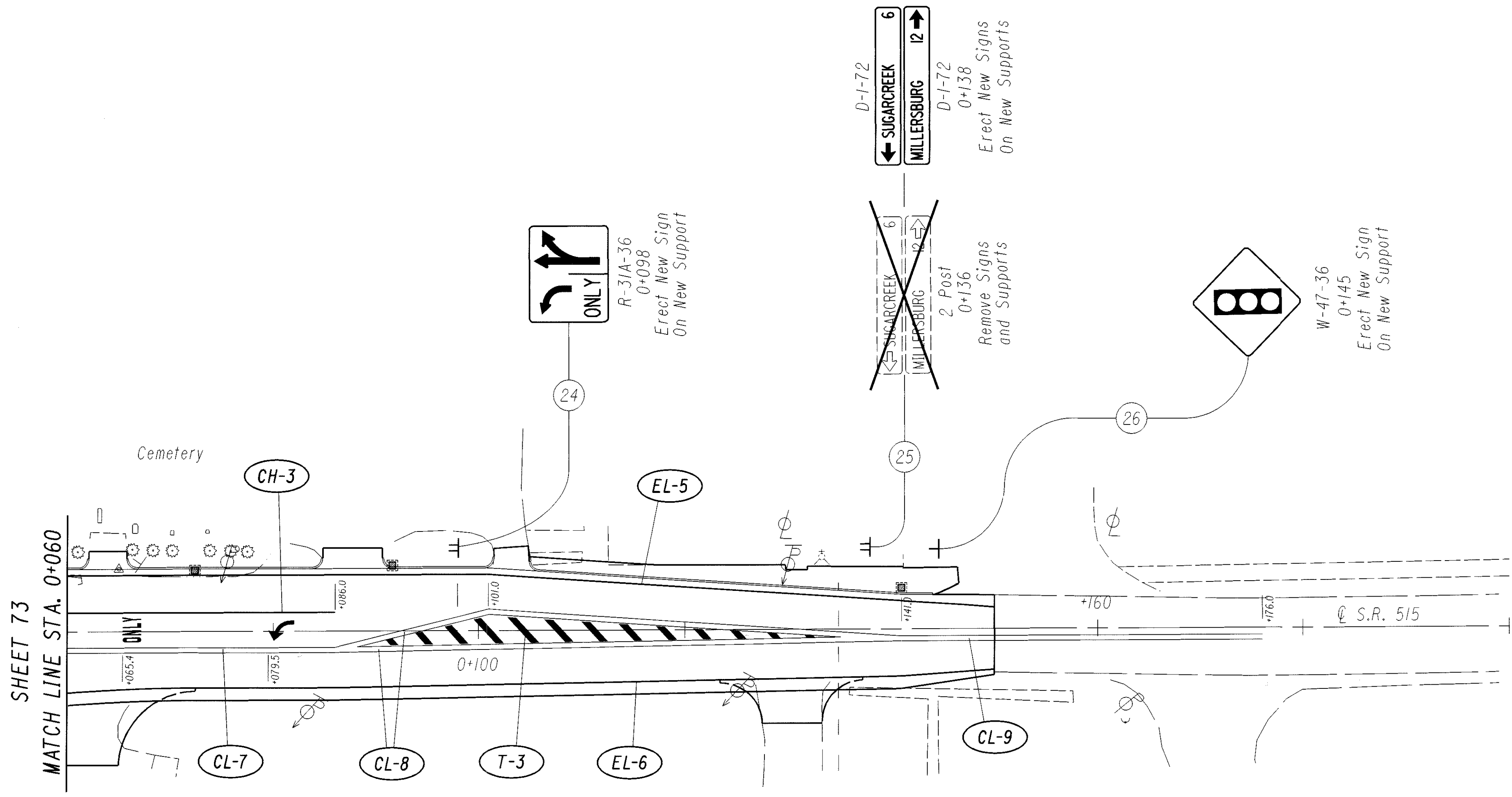


0 3 6
 HORIZONTAL
 SCALE IN METERS

CALCULATED
 JM
 CHECKED
 CJV

SIGNING PLAN AND PAVEMENT MARKING DETAILS
STA. 46+240 TO STA. 46+460

HOL - 39 - 46.140



SHEET 73

MATCH LINE STA. 0+060

Cemetery

CH-3

EL-5

25

26

CL-7

CL-8

T-3

EL-6

CL-9

ONLY
R-31A-36
0+098
Erect New Sign
On New Support

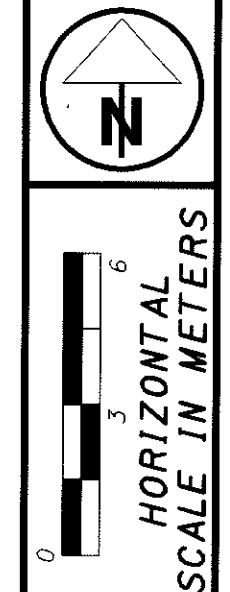
24

D-1-72
SUGARCREEK
MILLERSBURG
6
12

2 Post
0+136
Remove Signs
and Supports

W-47-36
0+145
Erect New Sign
On New Support

For Sign Legend, See Sheet No. 72
For Signing Quantities, See Sheet No. 70
For Pavement Marking Quantities, See Sheet No. 71



CALCULATED
JM
CHECKED
CJV

SIGNING PLAN AND PAVEMENT MARKING DETAILS
STA. 0+60 TO STA. 0+150

HOL-39-46.140

75
80

LOCATION	SIDE	625							632															633	
		CONDUIT, 51 MM, 713.04	TRENCH	TRENCH IN PAVED AREA, TYPE B	PULL BOX, 713.08, 450 MM	GROUND ROD	SPECIAL - PLASTIC CAUTION TAPE	VEHICULAR SIGNAL HEAD, 3 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN	VEHICULAR SIGNAL HEAD, 5 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN	COVERING OF VEHICULAR SIGNAL HEAD	PEDESTRIAN PUSHBUTTON, AS PER PLAN	DETECTOR LOOP	MESSANGER WIRE, 7 STRAND, 9 MM DIA. WITH ACCESSORIES	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	LOOP DETECTOR LEAD-IN CABLE	STRAIN POLE FOUNDATION	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG	SERVICE CABLE, 2 CONDUCTOR, NO. 8 AWG	POWER SERVICE	STRAIN POLE, TYPE TC-81.10, DESIGN 7, 9.1 M	STRAIN POLE, TYPE TC-81.10, DESIGN 7, 10.4 M	CONTROLLER WORK PAD	CONTROLLER, MODEL 170E, WITH 336 CABINET AND ACCESSORIES	
		METER	METER	METER	EACH	EACH	METER	EACH	EACH	EACH	EACH	EACH	METER	METER	METER	METER	EACH	METER	METER	EACH	EACH	EACH	SQ. M.	EACH	
46+030.5 TO 46+091.5	RT	61.0	61.0				61.0																		
46+091.5 TO 46+148.9	RT	57.4	57.4				57.4																		
46+148.9 TO POLE D	RT	6.9	6.9				6.9																		
46+175.5 TO POLE C	RT	12.4	12.4				12.4																		
POLE A TO 46+164.8	LT	8.5	8.5				8.5																		
POLE B TO 46+250.5	LT	64.2		64.2			64.2																		
46+250.5 TO 46+311.5	LT	61.0	61.0				61.0																		
46+030.5	RT																								
46+091.5	RT																								
46+148.9	RT																								
46+175.5	RT																								
46+164.8	LT									2															
46+250.5	LT																								
46+311.5	LT																								
46+159.2 (POLE A)	LT																					3.5			
46+189.1 (POLE B)	LT																								
46+185.9 (POLE C)	RT																								
46+145.9 (POLE D)	RT																								
POLE A TO POLE B	LT						2		2			34.0													
POLE B TO POLE C	RT<						1	1	2			31.4													
POLE C TO POLE D	RT						2		2			33.6													
POLE D TO POLE A	RT<						2		2			16.7													
S1 & S2 TO CONTROLLER	LT													35.8											
S3 & S4 TO CONTROLLER	LT&RT													54.4											
S5 & S6 TO CONTROLLER	LT&RT													44.6											
S7 & S8 TO CONTROLLER	LT&RT													28.8											
S9 TO CONTROLLER	LT													8.5											
CONTROLLER TO POWER	LT															14.0	47.0								
L1 TO CONTROLLER	LT&RT														68.3										
L2 AND L3 TO CONTROLL.	LT														29.0										
L4 TO CONTROLLER	LT&RT														90.9										
L5 TO CONTROLLER	LT&RT														191.7										
L6 TO CONTROLLER	LT&RT														129.2										
L7 TO CONTROLLER	LT														183.1										
L8 TO CONTROLLER	LT														120.6										
CONTROLLER TO POLE C	LT&RT												130.7												
CONTROLLER TO POLE D	LT&RT												68.3												
TOTALS		271.4	207.2	64.2	7	4	271.4	8	1	9	4	8	115.7	199.0	172.1	812.8	4	14.0	47.0	1	3	1	3.5	1	
TOTALS CARRIED TO GENERAL SUMMARY		271.4	207.2	64.2	7	4	271.4	8	1	9	4	8	115.7	199.0	172.1	812.8	4	14.0	47.0	1	3	1	3.5	1	

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GENERAL

THE CONTRACTOR SHALL FURNISH AND INSTALL TRAFFIC SIGNAL EQUIPMENT, IN CONFORMANCE TO THESE PLANS AND SPECIFICATIONS, THE 1997 STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND ALL SUPPLEMENTAL SPECIFICATIONS. HE SHALL INSTALL ALL TRAFFIC SIGNAL EQUIPMENT IN CONFORMANCE TO THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS LATEST REVISION, AND IN CONFORMANCE TO THE OHIO DEPARTMENT OF TRANSPORTATION OFFICE OF TRAFFIC ENGINEERING STANDARD CONSTRUCTION DRAWINGS.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATIONS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

g) NEW OR REUSED SIGNAL/FLASHER INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITH THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION, THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE FOR POLICE SERVICES AND MAINTENANCE SERVICES BY LOCAL FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM.

WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 7 HOURS AND SHALL NOT INCLUDE THE HOURS OF 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.24.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614, MAINTAINING TRAFFIC.

POWER SUPPLY FOR TRAFFIC SIGNALS ELECTRIC

POWER SHALL BE OBTAINED FROM THE AMERICAN ELECTRIC POWER COMPANY AT THE LOCATION INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS, 60 Hz, SINGLE PHASE 2-WIRE SERVICE.

STRAIN POLE FOUNDATION ELEVATIONS

ELEVATIONS SHOWN IN THE PLANS FOR STRAIN POLE FOUNDATIONS ARE FOR COMPUTATIONAL PURPOSES ONLY. THE ACTUAL ELEVATIONS OF THE FOUNDATION SHALL BE IN ACCORDANCE WITH TC-21.20M PROVIDED THE EXISTING SLOPE IS LESS THAN 6:1.

AT LOCATIONS WHERE THE EXISTING SLOPE IS 6:1 OR GREATER, THE BURIED DEPTH OF FOUNDATION, AS SHOWN IN STANDARD DRAWING TC-21.20M, SHALL APPLY TO THE LOW SIDE OF THE SLOPE. THE TOP OF THE FOUNDATION SHALL BE SET 50 MILLIMETERS ABOVE THE EXISTING SURFACE ON THE HIGH SIDE OF THE SLOPE. THE ADDITIONAL DEPTH OF FOUNDATION NECESSARY TO MEET THESE REQUIREMENTS SHALL BE ADDED TO THE FORMED TOP.

PAYMENT FOR ADDITIONAL CONCRETE SHALL BE AT THE CONTRACT UNIT PRICE BID FOR ITEM 632 CONCRETE FOR ANCHOR BASE FOUNDATION.

632 VEHICULAR SIGNAL HEAD, 3 & 5 SECTION, 305 MILLIMETER LENS, 1 WAY, AS PER PLAN

THIS ITEM SHALL CONFORM TO ITEM 632 EXCEPT THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SEPARATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING. ALL LENSES SHALL BE GLASS.

ITEM SPECIAL, PLASTIC CAUTION TAPE

THE LOCATION OF UNDERGROUND CONDUIT AND BURIED ELECTRICAL CABLES SHALL BE MARKED BY USING CONTINUOUS IDENTIFYING TAPE BURIED IN THE TRENCH ABOVE THE CONDUIT AND CABLES. THE IDENTIFYING TAPE SHALL BE AN INERT MATERIAL, APPROXIMATELY 6" (150 mm) WIDE, COMPOSED OF POLYETHYLENE PLASTIC HIGHLY RESISTANT TO ALKALIS, ACIDS, OR OTHER CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS.

THE TAPE SHALL BE BRIGHT SAFETY RED WITH IDENTIFYING PRINTING "ELECTRIC" IN BLACK LETTERS, ONE SIDE ONLY. THE TAPE SHALL BE SUPPLIED IN CONTINUOUS ROLLS WITH THE IDENTIFYING LETTERING REPEATED CONTINUOUSLY THE FULL LENGTH OF THE TAPE.

THE CONTRACTOR SHALL BURY THE IDENTIFYING TAPE ABOVE THE CONDUIT AND CABLES AT AN APPROXIMATE DEPTH OF 6" TO 10" (150 mm TO 250 mm) BELOW THE FINAL FINISHED GRADE. THE TAPE SHALL BE PLACED WITH THE PRINTED SIDE UP, AND SHALL BE ESSENTIALLY PARALLEL WITH THE FINISHED SURFACE.

THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS NOT TO PULL, DISTORT, OR OTHERWISE MISPLACE THE TAPE WHEN COMPLETING THE BACKFILL. THE TAPE SHALL BE PAID FOR PER METER OF ITEM SPECIAL, PLASTIC CAUTION TAPE, COMPLETE IN PLACE.

CALCULATED
TAL
CHECKED
DWB

TRAFFIC SIGNAL NOTES
S.R. 39 AND S.R. 515

HOL - 39 - 46.140

77
80

633 ITEM SPECIAL-CONTROLLER, MODEL 170E, WITH MODEL 336 CABINET AND ACCESSORIES (POLE MOUNT)
 THE CONTROLLER SUPPLIED SHALL BE COMPLETE WITH THE SPECIFIED CABINET INCLUDING ALL NECESSARY COMPONENTS AND CABLES NOT SPECIFICALLY MENTIONED BELOW. ALL EQUIPMENT AND CABINETS SHALL CONFORM TO ODOT SPECIFICATIONS 633, 733 AND THE FOLLOWING:

MODEL 170E CONTROLLERS:
 SPECIFICATIONS FOR THESE CONTROLLERS SHALL BE "TRAFFIC SIGNAL CONTROL EQUIPMENT SPECIFICATIONS", CALIFORNIA DEPARTMENT OF TRANSPORTATION, JANUARY 1989. THESE SPECIFICATIONS SHALL INCLUDE ADDENDUM 8, NOVEMBER 1993 OR LATEST REVISION. THE CONTROLLER UNITS SHALL CURRENTLY BE LISTED ON THE CALTRANS "QUALIFIED PRODUCTS LIST".

IN ADDITION:

1. THE CONTROLLER UNIT SHALL NOT BE SUPPLIED WITH THE M170E BOARD.
2. FOR CABINETS THAT ARE TO BE INCLUDED IN A HARDWARE (TWISTED PAIR) INTERCONNECTED SIGNAL SYSTEM, THE CONTROLLER UNIT SHALL INCLUDE A MODEL 400 MODEM AND COMMUNICATION SYSTEM INTERFACE AS SPECIFIED IN THE CALTRANS SPECIFICATIONS. IN ADDITION TO THE CALTRANS SPECIFICATION, MODEMS SHALL BE DESIGNED SUCH THAT IF ONE MODEM LOSES COMMUNICATION WITH THE MASTER, SUBSEQUENT MODEMS SHALL STILL BE ABLE TO COMMUNICATE.
3. A 412C PROM MODULE SHALL BE SUPPLIED FOR MEMORY SELECT #4 CONFIGURATION WITHOUT LOCAL CONTROLLER SOFTWARE TO THE ODOT DISTRICT OFFICE 14 DAYS IN ADVANCE OF WHEN SOFTWARE IS NEEDED. THE DISTRICT WILL PROVIDE THE LOCAL PROGRAM TO THE CONTRACTOR FOR HIS USE ON THE 412C PROM MODULE. ACCOMPANYING EACH PROM MODULE SUPPLIED TO THE DISTRICT SHALL BE THE TRAFFIC SIGNAL PLAN SHEET(S) THAT SHOW THE REQUIRED PHASING AND TIMING.
4. AS PER CALTRANS REQUIREMENTS, ALL MEMORY, MICROPROCESSOR AND ACIA DEVICES SHALL BE SOCKET MOUNTED. SOCKETS SHALL HAVE MACHINED BERYLLIUM COPPER CONTACTS WITH GOLD PLATING.
5. THE CONTROLLER SHALL BE SUPPLIED WITH THE APPROPRIATE COMMUNICATION PORT, CABLES AND CONNECTORS FOR COMMUNICATING WITH THE PORTABLE ARTERIAL MONITORING LAPTOP COMPUTER.
6. ALL CIRCUIT BOARDS SHALL BE VERTICALLY MOUNTED.
7. THE POWER SUPPLY SHALL BE MODULAR AND EASILY REMOVABLE FROM THE CHASSIS
8. THE UNIT SHALL CONTAIN SEPARATE INPUT AND OUTPUT

MODULES

2 SETS OF CONTROLLER SCHEMATICS AND SERVICE MANUALS SHALL BE SUPPLIED WITH EACH CONTROLLER. ONE SET OF C1 AND C2 WRAPAROUND CONNECTORS AND EXTENDER CARDS SHALL BE SUPPLIED AS PART OF THIS PROJECT.

SOFTWARE, EITHER THE CALTRANS "DAT" DIAGNOSTIC AND TESTING OR LICENSED THIRD PARTY SOFTWARE SHALL BE PROVIDED ON A SEPARATE PROGRAM MODULE THAT WILL BE INSERTED INTO THE UNIT FOR TESTING BOTH THE CONTROLLER AND CABINET. FOR THE PROJECT TWO SEPARATE PROGRAM MODULES WITH THE DIAGNOSTIC SOFTWARE AND TWO INSTRUCTION MANUALS SHALL BE PROVIDED.

CONFLICT MONITORS, TYPE 2010
 CONFLICT MONITORS SHALL BE ON THE ODOT PRE-APPROVED LIST. (S.S. 962)

TWO SETS OF OPERATIONS INSTRUCTIONS AND MONITOR SCHEMATICS SHALL BE SUPPLIED WITH EACH MONITOR. PERMISSIVE CHANNELS SHALL BE PROGRAMMED WITH THE USE OF A DIODE CARD (CALTRANS STANDARD) WHICH SHALL BE INCLUDED WITH THE MONITOR.

CABINET, MODEL 336:
 MODEL 336 CABINETS SHALL MEET THE SPECIFICATIONS "TRAFFIC SIGNAL CONTROL EQUIPMENT SPECIFICATIONS", CALIFORNIA DEPARTMENT OF

TRANSPORTATION, JANUARY 1989, OR LATEST EDITION, AND SHALL PREVIOUSLY HAVE BEEN ON THE CALTRANS "QUALIFIED PRODUCTS LIST" (QPL) FOR 336 CABINETS.

THE CALTRANS SPECIFICATION FOR MODEL 336 CABINETS SHALL BE MODIFIED SO THAT THE MODEL 336 CABINETS PROVIDED AS PART OF THIS CONTRACT ARE THE STRETCH TYPE THAT PROVIDES AN ADDITIONAL (10 INCHES) 250mm CABINET HEIGHT.

CABINETS SHALL BE CONSTRUCTED OF ALUMINUM AND SHALL BE SUPPLIED UNPAINTED. ANODIC COATING IS NOT REQUIRED. CABINETS SHALL BE FULLY EQUIPPED WITH CONFLICT MONITOR, FLASHERS, AC ISOLATORS, DC ISOLATORS, AND FLASH TRANSFER RELAYS. THE APPROPRIATE NUMBER OF SWITCH PACKS AND MODEL 222 LOOP DETECTOR SENSOR UNITS SHALL BE SUPPLIED TO OPERATE THE INTERSECTION AS SHOWN IN THE PLANS. ALL COMPONENTS SHALL MEET CALTRANS SPECIFICATIONS AND SHALL BE ON THE QPL AS APPLICABLE.

FOR POLE MOUNTED CABINETS, MOUNTING BRACKETS AND BOTTOM PLATES SHALL BE SUPPLIED AND INSTALLED. DOOR HINGED ON POLE MOUNTED SIDE. FOR BASE MOUNTED CABINETS, GALVANIZED ANCHOR BOLTS WITH NUTS AND WASHERS SHALL BE SUPPLIED. ANCHOR BOLTS SHALL BE (3/4") 19mm DIAM. BY (16") 406mm MINIMUM LENGTH WITH AN "L" BEND ON THE UNTHREADED END.

CABINETS SHALL BE FITTED WITH A PDA-2 POWER DISTRIBUTION ASSEMBLY. CABINETS SHALL BE EQUIPPED WITH AN EDCO SHA12-10 OR APPROVED EQUAL SURGE PROTECTOR IN LIEU OF THE CALTRANS SPECIFIED SURGE PROTECTION. THE SHA12-10 UNIT SHALL BE INSTALLED IN AN ENCLOSURE WITHIN THE CABINET.

THE FRONT OF THE INPUT AND OUTPUT FILES SHALL BE LABELED USING A WRITABLE TAPE. IN THE CASE OF THE OUTPUT FILE, THE TAPE SHALL CLEARLY DESIGNATE THE PURPOSE OF THE CORRESPONDING SWITCH PACK. AN EXAMPLE OF SWITCH PACK LABELING IS "PHASE 2" OR "PHASE 2 PED". IN THE CASE OF THE INPUT FILE, THE TAPE SHALL CLEARLY DESIGNATE THE PURPOSE OF THE CORRESPONDING DETECTOR UNIT. EVERY USED CHANNEL OF THE 222 DETECTOR SHALL BE LABELED. AN EXAMPLE OF DETECTOR UNIT LABELING IS "PHASE 2 C" OR "PHASE 2 EC" OR "PHASE 2 EXT" WHERE:
 C - IS A CALL INPUT ONLY DURING RED
 EC - IS EXTEND AND CALL DURING RED, YELLOW AND GREEN
 EXT - IS AN EXTENSION ONLY DURING GREEN

CABINET WIRING SHALL COMPLY WITH THE FOLLOWING:

1. OUTPUT FILES SHALL BE "HARDWIRED". NO PRINTED CIRCUIT WIRING SHALL BE USED IN THE OUTPUT FILE EXCEPT FOR THE RED MONITOR BOARD.
2. CABINETS SHALL HAVE RED MONITOR CABLING INSTALLED. A PROGRAM BOARD SHALL BE INSTALLED TO ENABLE/DISABLE RED MONITORING. CABINETS SHALL BE SHIPPED WITH THE RED MONITOR JUMPERS SET IN THE "ENABLE" POSITION.
3. PEDESTRIAN YELLOW LOADSWITCH OUTPUTS SHALL NOT BE CONNECTED TO THE CONFLICT MONITOR CARD-EDGE CONNECTOR.
4. FIELD WIRING FOR LOOP DETECTOR LEAD-IN CABLES AND PEDESTRIAN DETECTORS SHALL BE TERMINATED ON A LOWER LOOP INPUT PANEL. EDCO MODEL SRA-6LCA, SRA-6LCB OR SRA-6LC SURRESTORS SHALL BE PROVIDED ON THE LOWER INPUT PANEL FOR PROTECTION AGAINST INCOMING ELECTRICAL SURGES AND LIGHTNING. FIELD WIRING TERMINALS ON THE LOWER INPUT PANEL SHALL BE LABELED BY A PERMANENT SCREENING PROCESS TO IDENTIFY THE INPUT FILE (I), THE INPUT FILE SLOT NUMBER (1-14) AND THE CHANNEL TERMINAL (D, E, J OR K). AN EXAMPLE IS "I4-E" STANDING FOR INPUT FILE "I"; SLOT 4; CHANNEL TERMINAL "E".
5. FOR CABINETS THAT ARE TO BE INCLUDED IN A HARDWARE (TWISTED PAIR) INTERCONNECTED SIGNAL SYSTEM, INCOMING INTERCONNECT CABLE SHALL BE TERMINATED ON AN APPROPRIATE TERMINAL BASE THAT IS MOUNTED ON THE SIDE OF THE CABINET. PROTECTION FROM INCOMING ELECTRICAL SURGES/LIGHTNING ON INTERCONNECT PAIRS SHALL BE PROVIDED BY INSTALLATION OF EDCO PC642 SURGE ARRESTORS ON THE TERMINAL BASE. THE PROTECTED OUTPUTS FROM THE TERMINAL BASE SHALL THEN BE ROUTED THROUGH TO THE CONTROLLER.
6. A WIRING HARNESS WITH A DB-9 CONNECTOR SHALL BE BROUGHT FROM THE C2 ON THE BACK OF THE CONTROLLER TO THE FRONT OF THE CABINET RACK NEAR THE PULL OUT SHELF. THE HARNESS SHALL BE CONNECTED TO THE CONTROLLER TO ALLOW A LAPTOP COMPUTER TO UPLOAD/DOWNLOAD DATA.

THE FOLLOWING AUXILIARY ITEMS SHALL BE SUPPLIED:

1. CABINETS SHALL HAVE TWO FLUORESCENT LIGHTS (FRONT AND REAR) WITH DOOR SWITCHES.
2. A RACK MOUNTED DETECTOR TEST PANEL SHALL BE FURNISHED WITH SEPARATE TEST SWITCHES FOR ALL POSSIBLE VEHICLE AND PEDESTRIAN PHASES. THE SWITCHES SHALL BE MOMENTARY CONTACT PUSHBUTTONS OR ON/OFF SWITCHES. SWITCHES OR BUTTONS CAPABLE OF PROVIDING A PERMANENT "ON" POSITION SHALL NOT BE SUPPLIED. A CONSTANT CALL SHALL BE SIMULATED BY CONTINUOUSLY HOLDING THE BUTTON OR SWITCH IN THE ON POSITION.
3. EACH CABINET SHALL BE PROVIDED WITH A POLICE PANEL WHICH WILL INCLUDE A PUSHBUTTON WITH CORD AND THREE SWITCHES LABELED AUTO/FLASH, SIGNALS ON/OFF, AND AUTO/MANUAL. THE PUSHBUTTON CORD SHALL NOT BE WIRED THROUGH AN AC ISOLATOR, BUT SHALL BE CONNECTED TO THE CONTROLLER HARNESS WIRING BY A MOLEX PLUG CONNECTION. WHEN PLACED IN THE MANUAL POSITION, "MANUAL CONTROL ENABLE" SHALL BE

APPLIED TO THE CONTROLLER AND "RECALL" SHALL BE APPLIED TO ALL PHASES. ACTIVATION OF THE PUSHBUTTON SHALL "ADVANCE" THE CONTROLLER EXCEPT THAT MANUAL ADVANCEMENT WILL BE PROHIBITED IN THE MINIMUM GREEN, YELLOW AND RED INTERVALS.

4. AN ALUMINUM SHELF WITH INTEGRAL STORAGE COMPARTMENT SHALL BE PROVIDED IN THE RACK BELOW THE CONTROLLER. THE STORAGE COMPARTMENT WILL HAVE TELESCOPING DRAWER GUIDES FOR FULL EXTENSION. THE COMPARTMENT TOP SHALL HAVE A NON-SLIP PLASTIC LAMINATE ATTACHED.

TWO SETS OF CABINET WIRING DIAGRAMS, SERVICE MANUALS, PROGRAMMING AND MAINTENANCE INSTRUCTIONS SHALL BE FURNISHED FOR EACH CABINET AND EQUIPMENT ITEM. THE CABINET WIRING DIAGRAMS SHALL BE SUPPLIED IN A CLEAR PLASTIC POUCH FASTENED TO THE INSIDE OF THE CONTROLLER CABINET.

GENERATOR POWER PANEL:

THIS ITEM SHALL ALLOW SIGNAL ELECTRICIANS TO OPERATE THE TRAFFIC SIGNAL DURING POWER OUTAGES, WITHOUT OPENING THE CABINET DOOR OR CONNECTING OR DISCONNECTING PERMANENT POWER CABLES. THE ENCLOSURE SHALL BE INSTALLED ON THE POWER PANEL SIDE OF THE CONTROLLER CABINET. DESIGN AND LAYOUT OF THE CONTROLLER CABINET SHALL DETERMINE EXACT PLACEMENT OF THE ENCLOSURE BUT IT SHOULD BE PLACED NEAR THE TOP OF GROUND MOUNTED CABINETS AND ABOUT 5 FEET FROM THE GROUND ON POLE MOUNTED CABINETS. DETAIL DRAWING SHOWING THE ENCLOSURE, FRONT VIEW OF THE GENERATOR POWER PANEL AND THE ELECTRICAL HOOK-UP ARE INCLUDED IN THE SPECIFICATION. THE ENCLOSURE SHALL BE SEALED WITH A HIGH QUALITY SILICON CAULK AND ALL HOLES DRILLED INTO THE SIDE OF THE CONTROLLER CABINET SHALL BE CAULKED AND SEALED AFTER THE ELECTRICAL EQUIPMENT IS INSTALLED. ALL ELECTRICAL CONNECTIONS, SOLDERED OR SCREW TYPE TERMINALS, SHALL BE COVERED WITH A CLEAR SILICON CAULK.

THE GENERATOR INLET SHALL BE 30 AMP, LOCKING, FOUR WIRE GROUNDING AND MEET THE NEMA 114-30-P 30A 125/250V SPECIFICATION. THE INLET SHALL BE A HUBBLE CATALOG #2715.

THE LINE VOLTAGE GENERATOR SWITCH SHALL BE 30 AMP, 125/250V AC, TWO (2) POLE, THREE (3) POSITION, (ON, OFF, ON HUBBLE #1388).

THE LINE VOLTAGE INDICATOR LIGHT SHALL BE 125V AC LIGHT EMITTING DIODE WITH A RED LENS.

THE LINE VOLTAGE CIRCUIT BREAKER SHALL BE SINGLE POLE SINGLE THROW AND A MINIMUM OF 30 AMPS. THE AMPERAGE SHALL BE INCREASED TO ACCOMMODATE GREATER LOADS, IF NECESSARY. THE GAUGE OF THE POWER CABLE SHALL BE OF PROPER SIZE PER THE NATIONAL ELECTRICAL CODE (NEC).

PAYMENT

COST FOR ALL OF THE ABOVE INCLUDING LABOR, MATERIAL, TOOLS AND EQUIPMENT TO PROVIDE AND INSTALL A COMPLETELY OPERATIONAL CABINET AND CONTROLLER SHALL BE INCLUDED IN THE BID ITEM PRICE FOR 633 ITEM SPECIAL, CONTROLLER, MODEL 170E, WITH MODEL 336 CABINET AND ACCESSORIES.

INPUT FILE TERMINAL ASSIGNMENT

TERM.	PIN	FUNCTION
1	SP	SPARE
2	F	CHANNEL 1 OUTPUT
3	W	CHANNEL 2 OUTPUT
4	D	CHANNEL 1 INPUT
5	E	CHANNEL 1 INPUT
6	J	CHANNEL 2 INPUT
7	K	CHANNEL 2 INPUT
8	L	EQUIPMENT GROUND

FRONT VIEW OF TOP INPUT FILE I

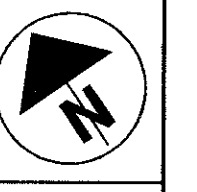
	SLOT 1	SLOT 2	SLOT 3	SLOT 4	SLOT 5	SLOT 6	SLOT 7	SLOT 8	SLOT 9	SLOT 10	SLOT 11	SLOT 12	SLOT 13	SLOT 14
Channel #1	1 EC	2 EC	3 EC	4 EC	5 EC	6 EC	7 EC	8 EC	PED. INHIB.	EV-A	EV-B	2 PPB	6 PPB	FLSH
Field Term.	I1-D,E	I2-D,E	I3-D,E	I4-D,E	I5-D,E	I6-D,E	I7-D,E	I8-D,E	I9-D,E	I10-D,E	I11-D,E	I12-D,E	I13-D,E	I14-D,E
Channel #2	2 C	2 EC	4 C	4 EC	6 C	6 EC	8 C	8 EC	RR	EV-C	EV-D	4 PPB	8 PPB	STOP TIME
Field Term.	I1-J,K	I2-J,K	I3-J,K	I4-J,K	I5-J,K	I6-J,K	I7-J,K	I8-J,K	I9-J,K	I10-J,K	I11-J,K	I12-J,K	I13-J,K	I14-J,K

FRONT VIEW OF BOTTOM INPUT FILE J

C - INPUT ONLY DURING RED
 EC - EXTEND AND CALL (RED, YELLOW, GREEN)
 EXT - INPUT ONLY DURING GREEN

TERMINATION OF FIELD WIRING SHALL CONFORM TO THE ABOVE CHART. THE CONTRACTOR SHALL DUPLICATE THE INPUT ASSIGNMENT CHART AND INCLUDE IT IN THE CABINET DOCUMENTATION. THE CHART SHALL CLEARLY INDICATE WHICH INPUT FILE SLOTS AND CHANNEL TERMINALS ARE USED IN THE CABINET. A RED PEN SHALL BE USED TO CIRCLE SLOT NUMBERS AND CHANNEL TERMINALS THAT ARE USED.

REVISED BY:	DATE:
ODOT MAINTAINED MODEL 170E CONTROLLER WITH MODEL 336 CABINET AND ACCESSORIES	
PLAN INSERT SHEET	
DATE 08/12/98	
78 80	



0 200 400
HORIZONTAL
SCALE IN METERS

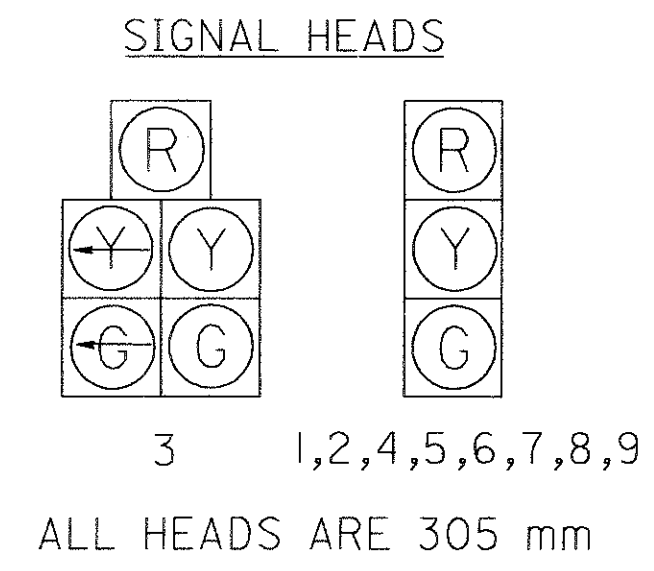
CALCULATED
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**TRAFFIC SIGNAL PLAN
S.R. 39 AND S.R. 515**

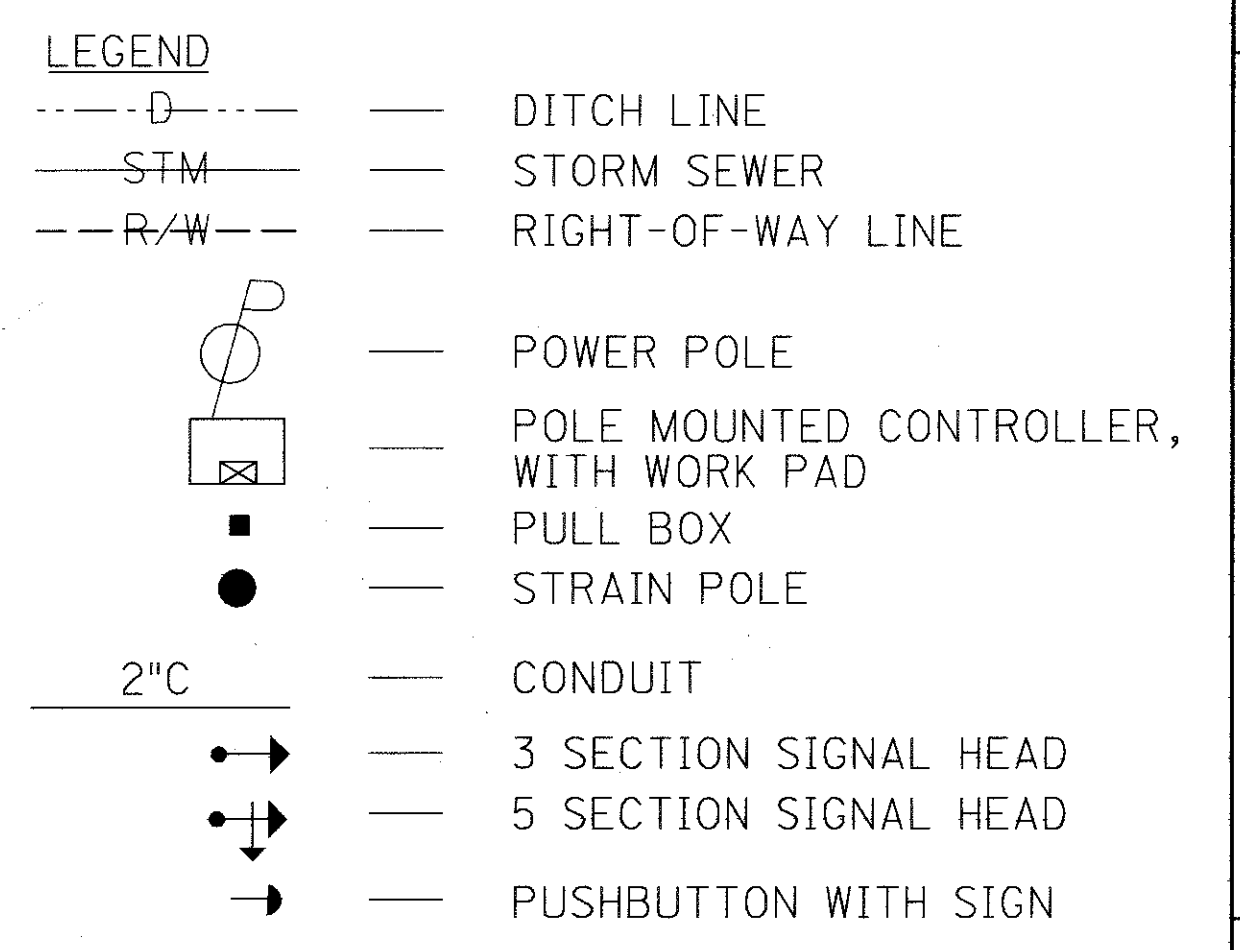
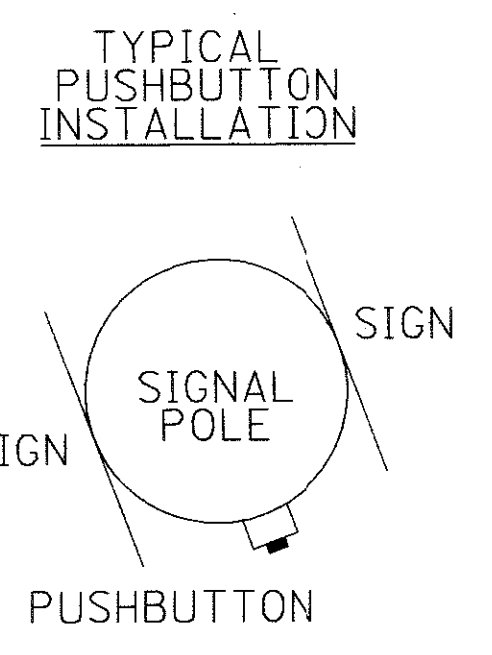
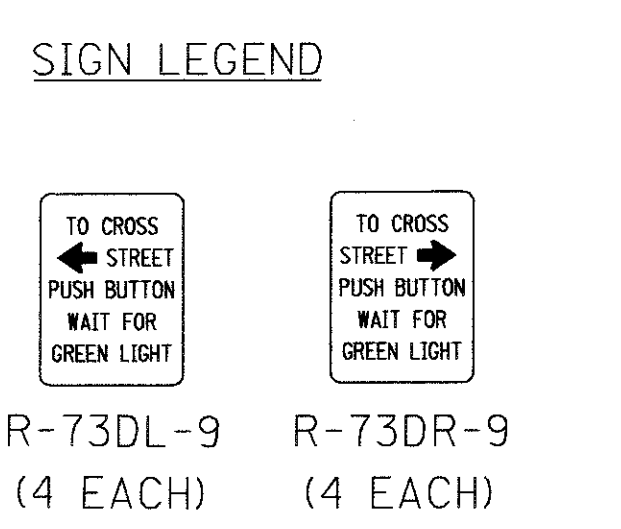
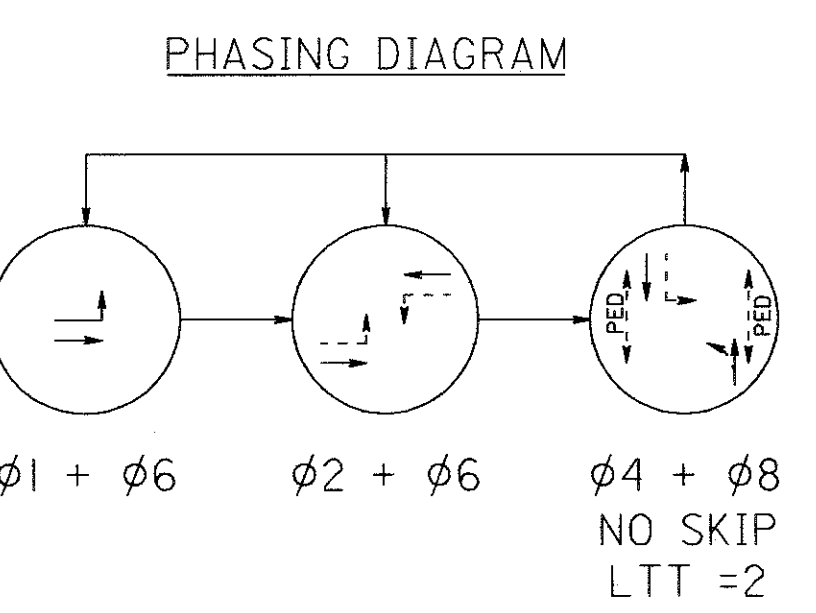
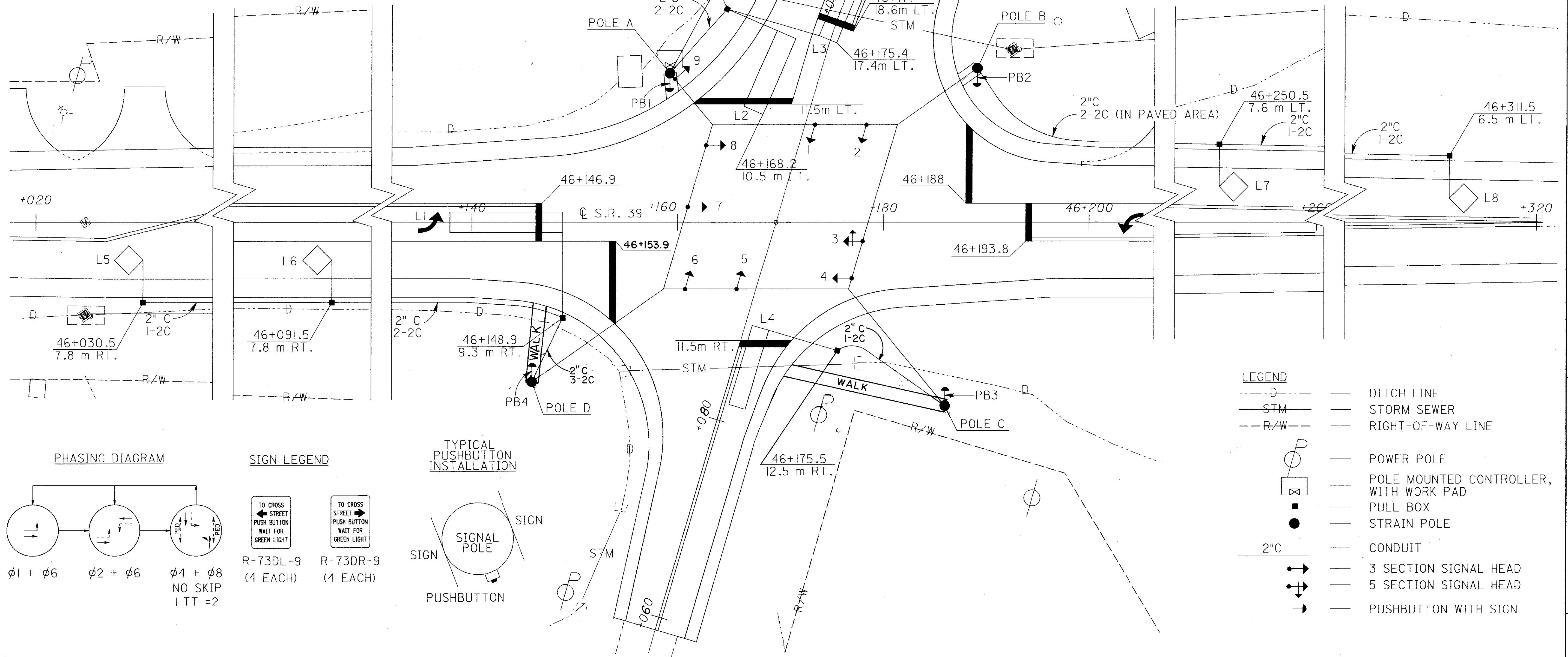
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PHASE TIMING (phase + key)										
MANUAL	FUNCTION	K E Y	PHASE NUMBER USE CAD LIGHTS							
			1	2	3	4	5	6	7	8
	Max I	0	20	60		40		60		40
	Max I I/HFDW	1								
	Walk	2				4				4
	Flash DW	3				15				15
	Max Initial	4		20				20		
	Min. Green	5	7	12		8		12		8
	T B R	6		20				20		
	T T R	7		5				5		
	Observe Gap	8								
	Passage	9	2	5		2.5		5		2.5
	Min. Gap	A		3				3		
	Added Actuation	B		2				2		
	Yellow	C	3.6	5		3.6		5		3.6
	Red Clear	D	2	1.5		2		1.5		2
	Red Revert	E								
	Walk II	F								



PHASE FUNCTIONS (0 + key)										
MANUAL	FUNCTION	K E Y	PHASE NUMBER USE CAD LIGHTS							
			1	2	3	4	5	6	7	8
	Vehicle Recall	0		X						X
	Ped Recall	1								
	Red Lock	2								
	Yellow Lock	3								
	Permit	4	X	X		X		X		X
	Ped Phases	5				X				X
	Lead Phases	6	X		X		X		X	
	Double Entry	7				X				X
	Sequential Timing	8								
	Start-up Green	9		X					X	
	Overlap A	A								
	Overlap B	B								
	Overlap C	C								
	Overlap D	D								
	Exclusive	E								
	Simultaneous Gap	F		X					X	



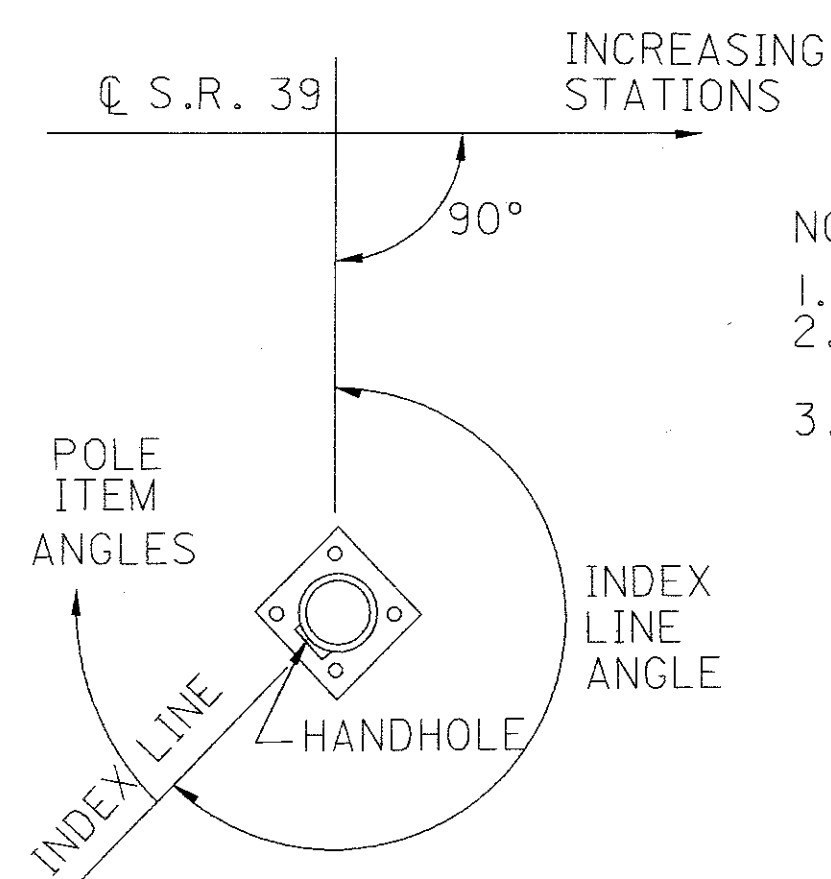
FILE: s:\projects\36733\signaling\953\plan.dgn DATE: 20-Jul-99 15:01

POLE ORIENTATION

TRAFFIC SIGNAL DETECTORS

POLE	DESIGN NO	STATION & OFFSET	POLE HEIGHT	INDEX ANGLE	POWER METER	PED BUTTONS	POWER SERVICE	CABLE ENTRANCE	2" CAPPED CONDUIT ELL (FUTURE USE)	AUX. SIGNAL HEAD	CONTROLLER
A	TC-81.10 DESIGN 7	46+159.2, 14.5 m LT.	9.1 m	140°	320°	220°	70°	180°	-	180°	40°
B	TC-81.10 DESIGN 7	46+189.1, 15.0 m LT.	9.1 m	235°	-	125°	-	180°	270°	-	-
C	TC-81.10 DESIGN 7	46+185.9, 17.8 m RT.	10.4 m	140°	-	220°	-	180°	270°	-	-
D	TC-81.10 DESIGN 7	46+145.9, 15.5 m RT.	9.1 m	235°	-	125°	-	180°	270°	-	-

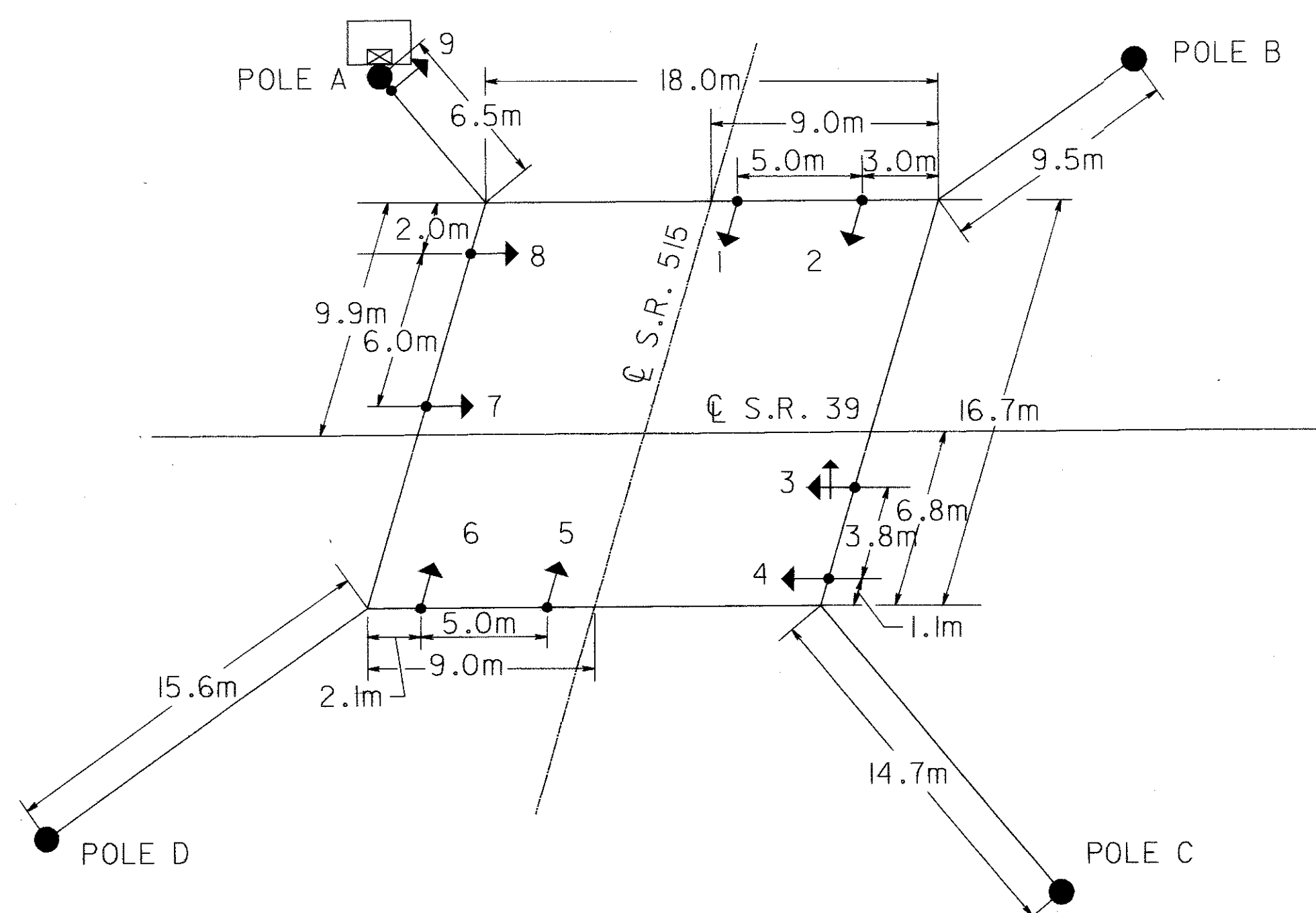
LOOP NO.	SIZE (meTers)	TURNS	MODE	DELAY (SEC.)	FILE	SLOT	CHANNEL TERMINAL	PHASE	WAPITI DELAY CODE
L1	11.0 X 2.0	2	PRESENCE	3	I	1	D,E	1	D+2+0
L2	8.0 X 2.0	2	PRESENCE	10	I	8	D,E	8	D+3+9
L3	8.0 X 1.64	2	PRESENCE	3	I	8	J,K	8	D+3+A
L4	8.0 X 1.64	2	PRESENCE	3	I	4	D,E	4	D+2+9
L5	2.0 X 2.0	3	PULSE	-	I	6	D,E	6	
L6	2.0 X 2.0	3	PULSE	-	I	6	J,K	6	
L7	2.0 X 2.0	3	PULSE	-	I	2	D,E	2	
L8	2.0 X 2.0	3	PULSE	-	I	2	J,K	2	



NOTE:

1. ALL ANGLES MEASURED CLOCKWISE
2. INDEX LINE GOES THROUGH THE CENTER OF HANDHOLE
3. FOR REFERENCE THE CENTERLINE IS THE CENTERLINE OF S.R. 39.

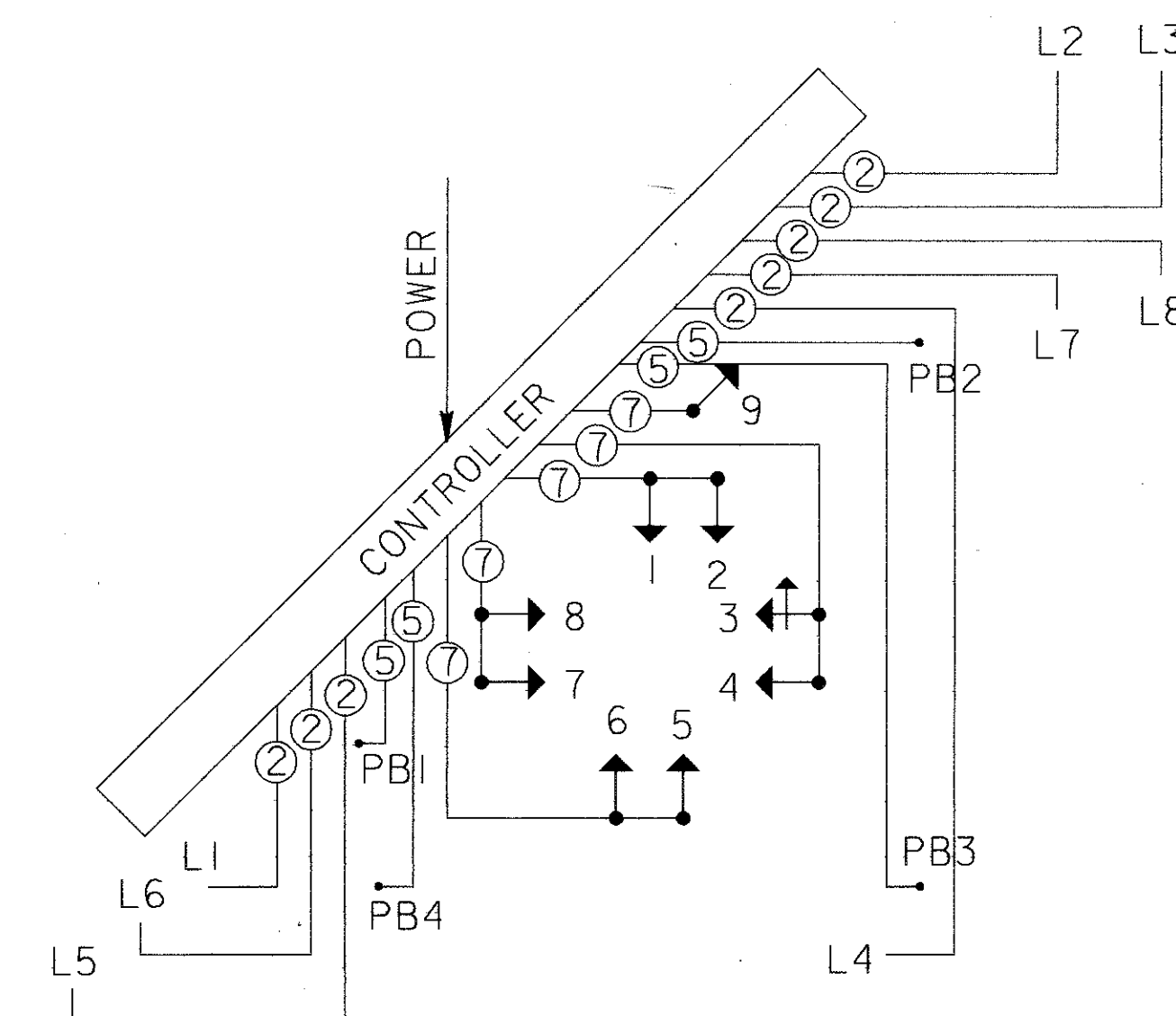
SPAN DIAGRAM



SIGNAL DISPLAY

PHASE	MOVEMENT	INTERVAL	SIGNAL NO.								
			1	2	3	4	5	6	7	8	9
1 +		RW	R	R	G	G	R	R	R	R	R
		CI	R	R	G	G	R	R	R	R	R
		C2	R	R	G	G	R	R	R	R	R
2 +		RW	R	R	G	G	R	R	G	G	R
		CI	R	R	Y	Y	R	R	Y	Y	R
		C2	R	R	R	R	R	R	R	R	R
4 +		RW	G	G	R	R	G	G	R	R	G
		CI	Y	Y	R	R	Y	Y	R	R	Y
		C2	R	R	R	R	R	R	R	R	R
FLASH			R	R	Y	Y	R	R	Y	Y	R

WIRING DIAGRAM



TRAFFIC SIGNAL DETAILS
S.R. 39 AND S.R. 515

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