

LOCATION MAP

LATITUDE: 41°22'13.8" N LONGITUDE: 81°03'51" W



PORTION TO BE IMPROVED		PERCENTAGE OF TOTAL
INTERSTATE HIGHWAY	-----	-----
FEDERAL ROUTES	-----	-----
STATE ROUTES	-----	-----
COUNTY & TOWNSHIP ROADS	-----	-----
OTHER ROADS	-----	-----

DESIGN DESIGNATION

DESIGN DESIGNATION	S.R.-88 S.L.M.	S.R.-88 S.L.M.	S.R.-528 S.L.M.	S.R.-528 S.L.M.
	02.07-02.28	02.28-03.36	01.29-04.59	04.59-06.35
OPENING ADT (2016) _ _ _ _ _	6,900	8,100	5,600	4,000
DESIGN YEAR ADT (2036) _ _ _ _ _	6,900	9,600	5,700	4,200
DESIGN HOURLY VOLUME (2036) _ _ _ _ _	690	960	570	500
DIRECTIONAL DISTRIBUTION _ _ _ _ _	0.5	0.51	0.56	0.63
TRUCKS (24 HOUR B&C) _ _ _ _ _	0.11	0.1	0.11	0.12
DESIGN SPEED _ _ _ _ _	55 MPH	55 MPH	55 MPH	55 MPH
LEGAL SPEED _ _ _ _ _	40 MPH	40/55 MPH	55 MPH	55 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	Minor Arterial	Minor Arterial	Major Collector	Major Collector
NHS PROJECT:	No	No	No	No

DESIGN EXCEPTIONS:
NONE REQUIRED

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES TWO WORKING DAYS
BEFORE YOU DIG.



Call Before You Dig
1-800-362-2764

SERVICE
(Non-members must be called directly)
OIL & GAS PRODUCERS
UNDERGROUND PROTECTION SERV.
1-800-925-0988

PLAN PREPARED BY:
**ODOT DISTRICT 12
 PLANNING & ENGINEERING
 DEPARTMENT**

ENGINEERS SEAL:



SIGNED: E. M. Kallio
Eric M. Kallio
DATE: 1-20-15

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

GEA - 088 / 528 - 02.07 / 01.29

**PARKMAN TOWNSHIP
MIDDLEFIELD TOWNSHIP
VILLAGE OF MIDDLEFIELD
GEAUGA COUNTY**

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PROJECT DESCRIPTION

This project consists of resurfacing on Main St. (SR-88) from US-422 to Nash Rd; and Madison Rd. (SR-528) from Nash Rd. (SR-88) to Kinsman Rd. (SR-87) in Parkman and Middlefield Townships and the Village of Middlefield.

PROJECT EARTH DISTURBED AREA: N/A MAINTENANCE PROJECT
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A MAINTENANCE PROJECT
NOTICE OF INTENT EARTH DISTURBED AREA: N/A MAINTENANCE PROJECT

2013 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 APPROVED THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

[illegible]

APPROVED _____
DATE 01.19.16 DISTRICT DEPUTY DIRECTOR

APPROVED *James Wray*
DATE *2-5-16* DIRECTOR, DEPARTMENT OF
TRANSPORTATION

FEDERAL PROJECT NO.
E150(733)

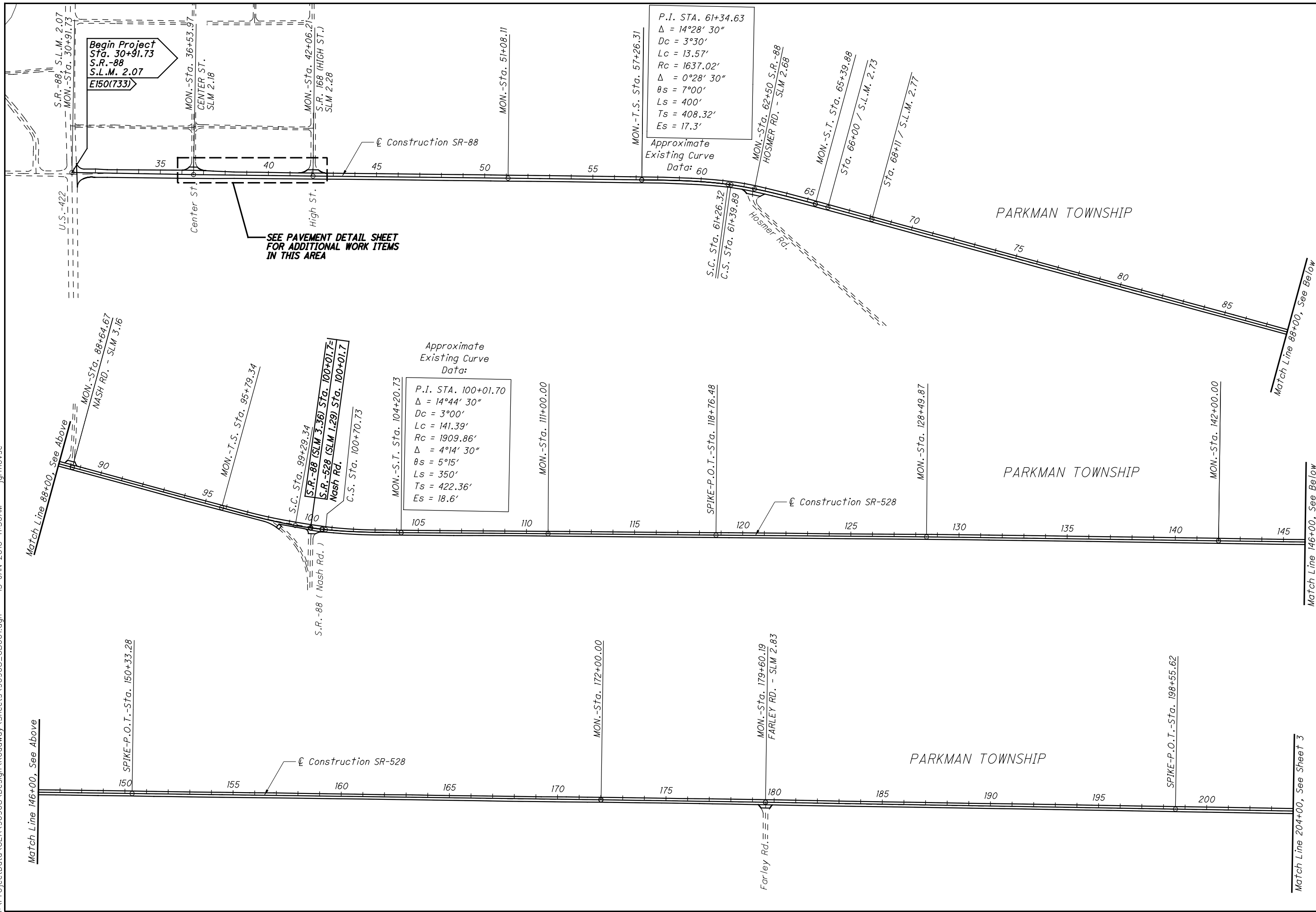
PID NO.
90908

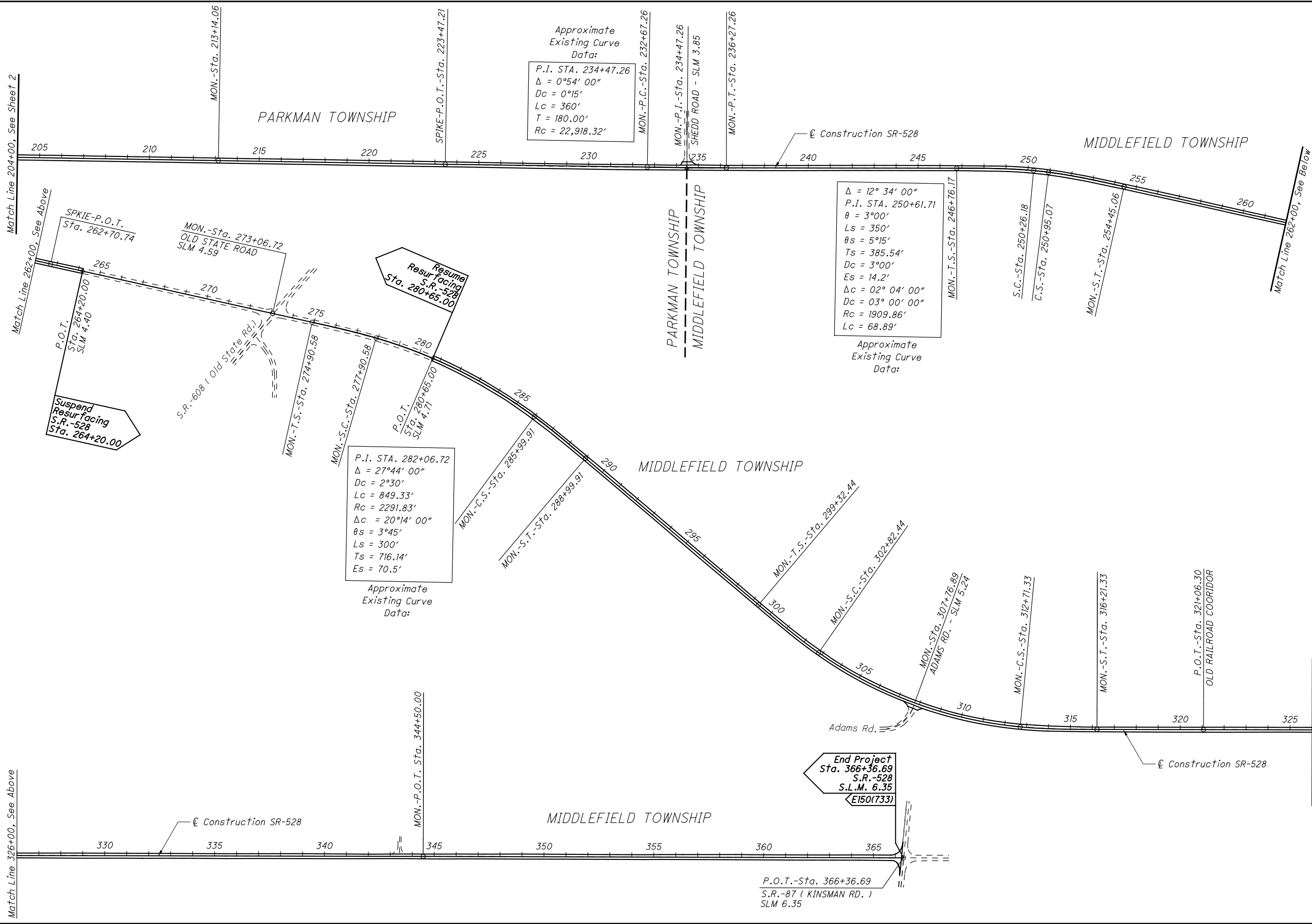
CONSTRUCTION PROJECT NO.

None

GEA-88/528-
02.07/01.29

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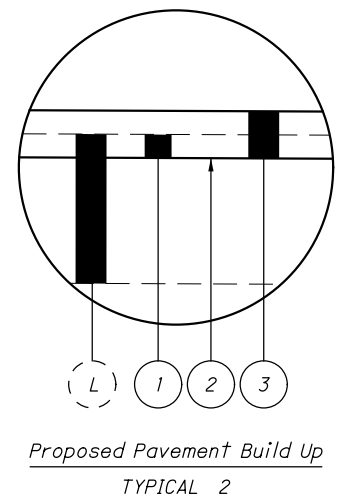
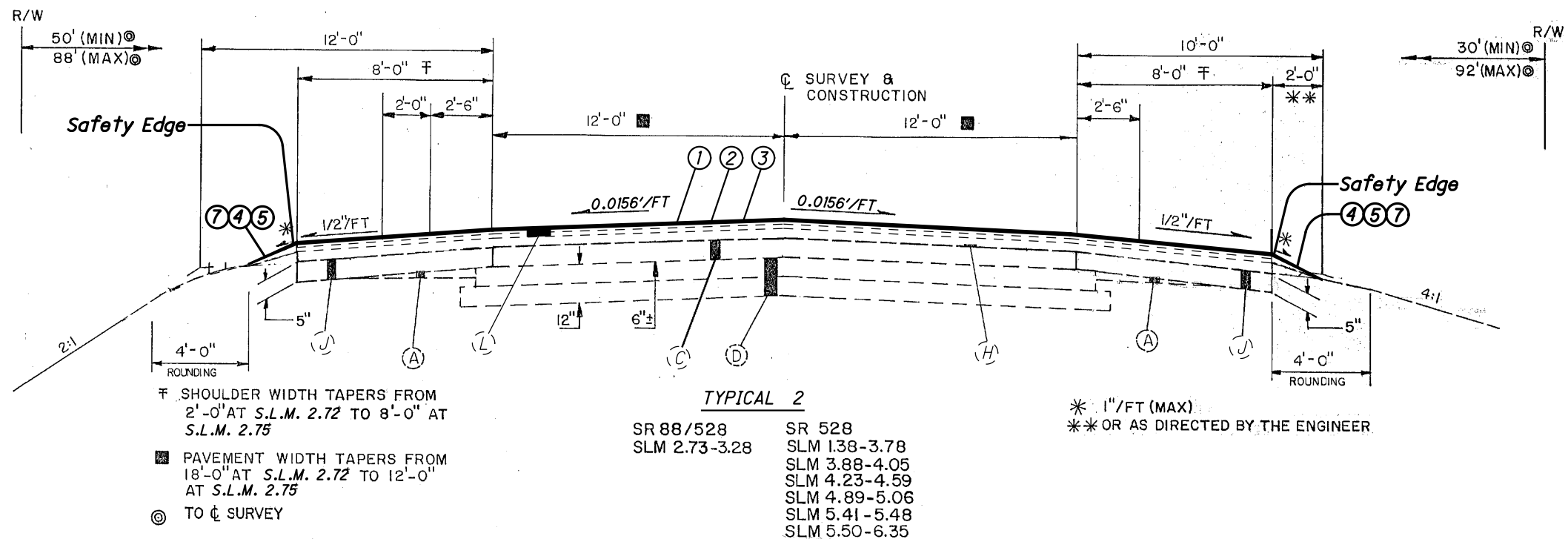
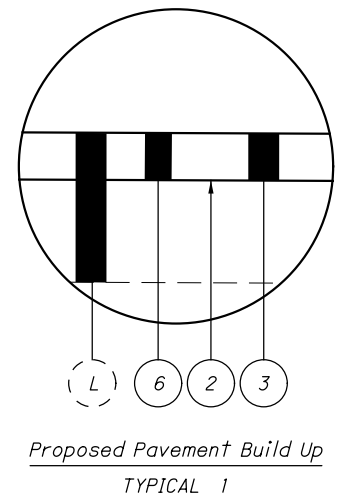
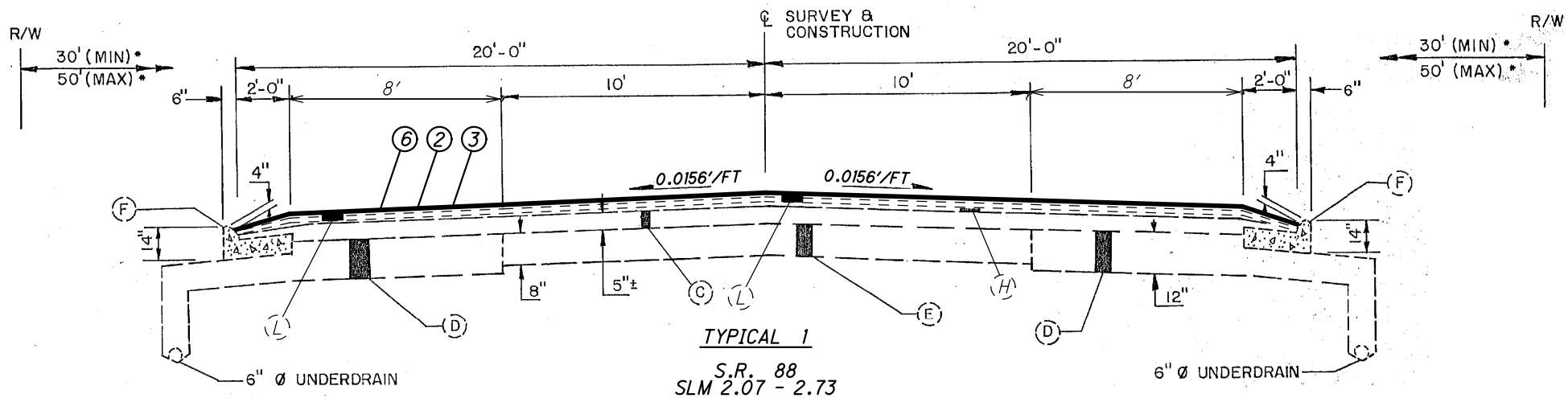




SCHEMATIC PLAN

GEA-88 / 528-02.07 / 01.29

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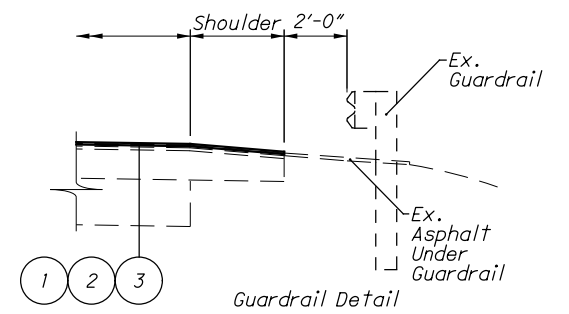


EXISTING LEGEND:

- (A) AGGREGATE BASE
- (B) ASPHALT SHOULDER
- (C) ASPHALT CONCRETE
- (D) AGGREGATE BASE
- (E) AGGREGATE
- (F) CURB AND GUTTER
- (G) 1-1/4" ASPHALT CONCRETE
- (H) ASPHALT CONCRETE, AC-20
- (J) 5" BITUMINOUS AGGREGATE BASE, AC-20
- (K) MACADAM BASE
- (L) 3" ASPHALT CONCRETE SURFACE COURSE, 12.5mm, TYPE A (446), (2 - 1-1/2 LIFTS)

PROPOSED LEGEND:

- ① ITEM 897 - PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN (1/2" Avg.)
- ② ITEM 407 - TACK COAT, TRACKLESS TACK
- ③ ITEM 442 - ASPHALT CONCRETE SURFACE COURSE, 12.5MM, TYPE A (446), AS PER PLAN (1-1/2")
- ④ ITEM 617 - COMPACTED AGGREGATE, AS PER PLAN
- ⑤ ITEM 209 - PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN
- ⑥ ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN (1-1/2" Avg.)
- ⑦ ITEM 209 - LINEAR GRADING, AS PER PLAN



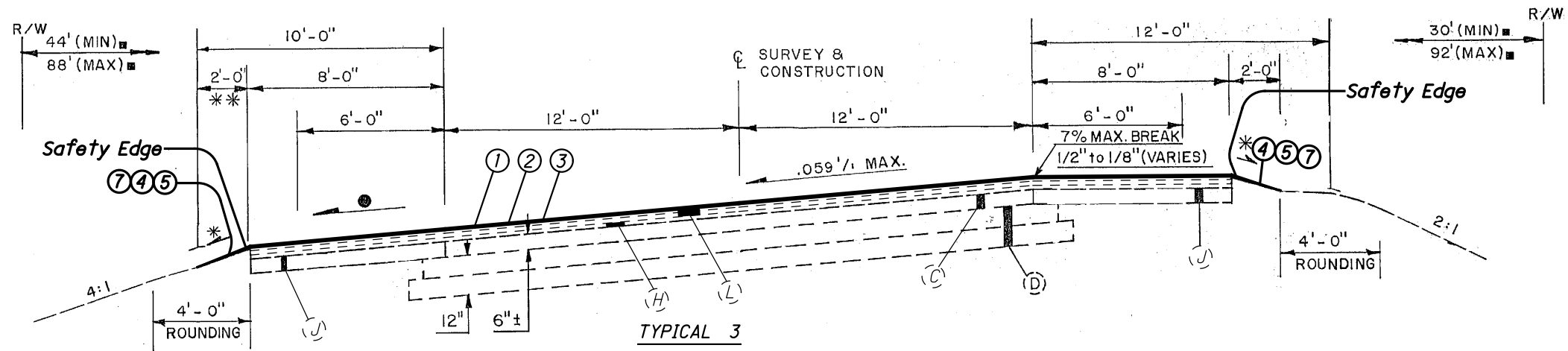
TYPICAL INFORMATION FROM RECORD PLANS

TYPICAL SECTIONS

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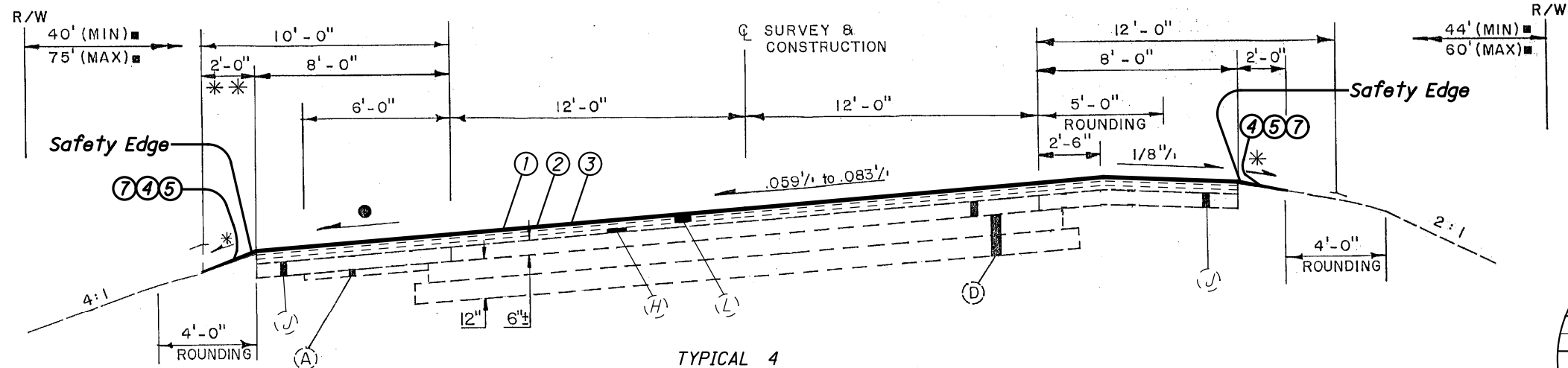
- = 1/2" / FT OR RATE OF SUPERELEVATION
IF GREATER
* = 1" / FT (MAX)
** OR AS DIRECTED BY THE ENGINEER
■ = TO CL SURVEY



SR 88/528
SLM 3.28-3.36

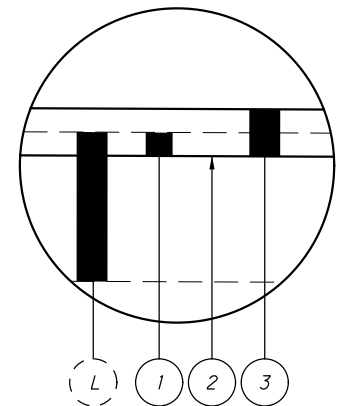
SR 528
SLM 1.29-1.38
SLM 3.78-3.88
SLM 4.05-4.12
SLM 4.16-4.23
SLM 4.59-4.67

SLM 4.82-4.89
SLM 5.06-5.13
SLM 5.34-5.41
SLM 5.48-5.50



SR 88/528
SLM 3.36-1.29

SR 528
SLM 4.12-4.16
SLM 4.67-4.82
SLM 5.13-5.34



Proposed Pavement Build Up
TYPICAL 3 & 4

TYPICAL INFORMATION
FROM RECORD PLANS
SEE SHEET 4 FOR LEGEND

TYPICAL SECTIONS

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02.07/01.29

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General

Project Description

This project consists of the resurfacing on Main St. (SR-88) from US-422 to Nash Rd; and Madison Rd. (SR-528) from Nash Rd. (SR-88) to Kinsman Rd. (SR-87) in Parkman and Middlefield Townships and the Village of Middlefield in Geauga County.

Existing Typical Sections

Existing typical sections have been taken from the records and are believed to represent the existing pavement, but the State of Ohio does not guarantee the accuracy of the same.

For further information in regard to the existing typical sections, the Contractor shall refer to the previous construction plans.

These plans may be reviewed at the following location:

Ohio Department of Transportation
District 12 Office
5500 Transportation Boulevard
Garfield Heights, Ohio 44125

Plan Sheet Stationing

The roadway was not surveyed prior to the preparation of these plans. Record drawings were used to prepare plan sheets and calculate estimated pavement area quantities and pavement marking quantities.

Right of Way

All work shall be performed within the existing right of way or easements.

Work Limits

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

Contingency Quantities

The Contractor shall not order materials or perform work for items designated by plan note to be used "as directed by the Engineer" unless authorized by the Engineer. The actual work locations and quantities used for such items shall be incorporated into the final change order governing completion of this project.

Equipment and Material Storage

In order to provide for the safety of the traveling public the Contractor's attention is directed to 614.03. In addition the following provisions shall apply:

1. Any removed items shall not be stored on the right of way for more than thirty (30) days.
2. The storage of equipment, materials, and vehicles within the highway right of way will be permitted. The number of areas and exact locations shall be approved by the Engineer.
3. All disturbed areas shall be returned to their original condition at no expense to the state.

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, do not operate power-operated construction-type devices between the hours of 9:00pm and 7:00am. In addition, do not operate at any time any device 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.

Cooperation between Contractors

The Contractor shall cooperate and coordinate his/her operations with the contractors on other projects that may be in force during the life of the contract. No waiver of any provisions of 105.07 of the Construction and Material Specifications is intended.

Staging Areas

There are no specific areas given in the plans for the Contractor to use as a staging area(s). If the Contractor wants to use an area(s) for staging, regardless if it falls within the project limits or not, the Contractor is to contact Jill Powers at 216-584-2195 at District 12 in order to apply for a permit per Section 107.02 of the CMS.

If a permit is granted, all conditions of the permit shall be met in addition to the requirements of 104.04 of the CMS, at no additional cost to the State. If the Project Engineer deems that all the conditions of the permit were not met, then 10% of the Contract bid amount for mobilization shall be withheld until all the conditions of the permit are satisfied.

Item 619 – Field Office, Type B, As Per Plan

A Type B Field Office is required for this project.

The following revisions to equipment supplied with the Type B Field Office, as specified in Table 619.02-1, Field Office, shall apply:

- The copier supplied must meet the requirements of the copier supplied with the Type C Field Office.
- The broadband internet connection must meet the requirements of the minimum download speeds supplied with the Type-C Field Office.

All other field office items supplied shall meet the requirements of a Type B Field Office.

Item 619 – Field Office, Type B, As Per Plan..... 6 Months

Protection of Right-of-Way Landscaping

Prior to beginning work, the Contractor, the Project Engineer and a representative of the maintaining agency will review and record all landscaping items with the Right-of-Way (both within and outside the construction limits). A record of this review will be kept in the Project Engineer's files. Prior to final acceptance, a final review of landscaping items will be made.

Constrict all activities, equipment storage, and staging to within the construction limits. Unless otherwise identified in the plans or proposal, the construction limits are identified as 30 feet from the edge of pavement.

Submit a written request to the Project Engineer to use any area outside these limits. The document submitted must clearly identify the area and explain the proposed use and restoration of the area. Use of these areas for disposal of waste material and construction debris, excavation of borrow material and placement of portable plants is prohibited. The request must be approved, in writing, before the Contractor has permission to use the area.

Any items damaged beyond the construction limits, as defined above, will be replaced in kind or as approved by the Project Engineer.

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Utilities

Listed below are all known utilities located within the project construction limits together with their respective owners. The Ohio Department of Transportation has used the best available information to determine the utility companies serving this area but cannot guarantee that this utility company list is complete.

Dominion East Ohio Gas Co.
320 Springside Dr.
Fairlawn, Ohio 44333
Attn: Ed Goubeaux
Project Manager
Phone: (330) 664-2494
Mobile: (330) 604-7482
E-mail: edward.t.goubeaux@dom.com

Ohio Edison
470 East Highland Road
Macedonia, Ohio 44056
Attn: Brian Pound
Phone: (330) 342-1220
E-mail: npound@firstenergycorp.com

Brainard Gas Corp.
4369 Brainard Road
Orange Village, OH 44022
Attn: Ed Bonk
Phone: (216) 591-9110

CEI First Energy
(The Illuminating Company)
RALPH DELLIGATTI
DESIGN SUPERVISOR
7755 Auburn Road
Painesville OH 44077
Office 440-358-4991
email: rndelligatti@firstenergycorp.com

Windstream
560 Ternes Ave.
Elyria, Ohio 44035
Attn: Geoffrey Hamm
OSP Engineer II
Phone: (440) 329-4245 (office)
Phone: (330) 256-6133 (cell)
E-mail: geoffrey.p.hamm@windstream.com

Geauga County Department of Water Resources
470 Center Street, Building #3
Chardon, Ohio 44024-1071
Assistant Sanitary Engineer:
Gerard R. Morgan, P.E.
Primary: (440) 279-1981
Fax: (440) 285-9549
E-mail: gerrym@gcdwr.org

Time Warner Cable
7820 Division Drive
Mentor, Ohio 44060
Supervisor: Charles Sullivan
Phone: (440) 974-3401,Ext. 125

Field Engineer: Matt Hannah
Construction Coordinator for
Lake and Geauga, NEO/WPA
Phone: (216) 575-8016
Ext: 2165551105
Cell: (440) 655-5590
E-mail: mathew.hannah@twcable.com

Suddenlink Communications
4720 Mahoning Ave
Youngstown, Ohio 44515
Phone: (330) 792-9577

AT&T
13630 Lorain Ave. – 2nd Floor
Cleveland, OH 44111
Attn: James Janis
Design Manager
Phone: (216) 476-6142
Fax: (440) 260-0113

Orwell Trumbull (Cobra) Pipeline
3511 Lost Nation Road, Suite 213
Willoughby, Ohio 44094
Attn: Amy Caunter or
Dennis Everhart
Phone: (440) 255-1945
Fax: (440) 255-1985
acaunter@cobrapipeline.com
deverhart@cobrapipeline.com

Spread Networks, LLC
(Northeastern ITS)
800 Woodlands Parkway,
Suite 102
Ridgeland, MS 39157
Attn: John P. Bruce
Phone: (769) 216-8095
E-mail: john.bruce@spreadnetworks.com

Orwell Natural Gas Company
8470 Station Street
Suite 100
Mentor, Ohio 44060
Attn: Jeff Heidnik
Phone: (440) 701-5100
Cell: (440) 413-9809
Fax: (440) 974-0844
E-mail: jheidnik@egas.net

Ohio Department of Transportation
District 12 – Roadway Services
5500 Transportation Boulevard
Garfield Heights, Ohio 44125
Attn: Tony Toth
Phone: (216) 584-2220
Anthony.Toth@dot.state.oh.us

There are no underground utilities shown on this plan. The nature of the work required by this project will not affect any known underground utilities that exist under or adjacent to the work area.

Drainage

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 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 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 611 drainage items.

Castings Adjusted to Grade, As Per Plan

All castings shall be adjusted to the finished roadway elevation by the Contractor. The time between adjusting the castings and resurfacing shall be kept to an absolute minimum. No adjusting rings shall be permitted. When performing this work, the pavement shall be sawcut prior to removal and hook bolts shall be used where practical to connect existing pavement to new concrete.

The following estimated quantities have been carried to the General Summary:

Item 623 – Monument Box Adjusted to Grade, As Per Plan	31 Each
Item 611 – Catch Basin Adjusted to Grade, As Per Plan	16 Each
Item 611 – Manhole Adjusted to Grade, As Per Plan	5 Each

Village of Middlefield
14860 N. State Ave.
P.O. Box 1019
Middlefield, OH 44062
Phone: (440) 632-5248
Fax: (440) 632-0591

Castings Reconstructed to Grade

The Contractor and Field Engineer shall field check all existing catch basins, manholes, or monument boxes located within the limits of the project. Any casting found that exhibits substantial deterioration and requires more work than is specified under "Castings Adjusted to Grade" shall be "Reconstructed to Grade", as directed by the Engineer. If none are needed, these items are to be non-performed.

The following estimated quantities have been carried to the General Summary for use as directed by the Engineer:

Item 611 – Catch Basin Reconstructed to Grade	6 Each
Item 623 – Monument Box Reconstructed to Grade	4 Each

Item Special – Miscellaneous Metal

No specific location has been identified for reconstruction in these plans. The below estimated quantity is provided for use as directed by the Engineer.

Existing castings may prove to be unsuitable for reuse, as determined by the Engineer during the construction of the project. It shall be the Contractor's responsibility to provide castings of the required type, size and strength (light or heavy duty) for the particular structure in question. All materials shall meet Item 611 of the Specifications and shall have the prior approval of the Engineer. The following estimated quantity has been carried to the General Summary for use as directed by the Engineer.

Item Special, Miscellaneous Metal.....	4000 lbs.
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The Contractor is cautioned to use extreme care in removal, storage and replacement of all existing castings. Castings damaged by the negligence of the Contractor, as determined by the Engineer, shall be replaced with the proper new castings at the expense of the Contractor. The Contractor shall not order materials until authorized by the Engineer and if none are needed the item shall be non-performed.

Item 611 – Catch Basin, No. 3, As Per Plan

This item of work, as directed by the Engineer, shall include all work needed to replace the existing catch basins, grates, and surrounding curb and pavement work at the locations shown on the Pavement Detail Sheet of the plans.

No surveys of the existing catch basins were performed. Prior to ordering the proposed catch basins, the contractor shall refer to the Drainage Detail Sheet and field verify the depth of the proposed catch basins. The cost for this survey shall be included in this item of work.

Payment for all operations described above shall be included in the contract price for Item 611 – Catch Basin No. 3, As Per Plan..

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Pavement

Profile and Alignment

Place the proposed pavement to follow the alignment of the existing pavement. Place the proposed asphalt concrete with a uniform thickness as shown on the typical sections. The intent of the plans is not to increase the existing profile in the curbed section and by not more than 1” in the uncurbed section as shown on the typical sections.

Planed Surfaces

The duration of time between milling and placement of the surface course shall be no longer than fourteen (14) days. The time limit shall begin on the first day of planing, and shall continue based on calendar days, minus any bad weather days, until completion of the asphalt concrete surface course.

Item 251 – Partial Depth Pavement Repair

Use this item to repair unsound, cold-patch, or pop-out areas of longitudinal and transverse joints as directed by the Engineer. Perform repairs after the planing operation and prior to resurfacing. Make standard repairs at a depth of 3” and at a minimum width of 12”. Center the repair over the existing joint. This work shall be performed prior to the planning operation.

The following estimated quantity has been carried to the General Summary to complete this item of work:

Item 251 – Partial Depth Pavement Repair 1900 Sq Yd

Item 253 – Pavement Repair, As Per Plan

This work item is for use as directed by the Engineer for the purpose of shoulder repair. All labor and material necessary to perform this work and Section 250 of the CMS shall be included for payment under Item 253.

Depth of pavement repair removal shall typically be 6”, measured after the pavement has been planed. The depth of repair shall be directed by the Engineer if unsound material is encountered after the removal of the 6”. This work shall be performed prior to the planning operation.

Use replacement materials conforming to the requirements of Item 301.

The following item has been carried to the General Summary for use as directed by the Engineer:

Item 253 – Pavement Repair, As Per Plan 50 Cu Yd

Item 897 – Pavement Planing, Asphalt Concrete, Class A, As per Plan

Pavement planing shall be performed at an average depth of 1/2".

All equipment, materials and labor required to perform the pavement planing as detailed in these plans shall be included for payment under Item 897 – Pavement Planing, Asphalt Concrete, Class A.

Item 209 - Linear Grading, As Per Plan

This item of work, as directed by the Engineer, shall consist of grading along the outside edge of the paved shoulder to eliminate high spots and provide positive sheet flow off the pavement and shoulder into roadside ditches or drainage structures. This item is not intended to be used to excavate a uniform depth to place Item 617 – Compacted Aggregate, As Per Plan.

Any debris collected shall be removed and disposed of as specified in Section 105.16 & 105.17 of the Construction and Material Specifications.

Payment for the above work shall be made at the unit bid price for Item 209, Station, Linear Grading, As Per Plan and shall include all labor, tools, equipment and materials necessary to perform this item of work.

Item 304 – Aggregate Base

This item shall be used as directed by the Engineer in areas of pavement repairs where the Engineer deems the subgrade material unsuitable. Place 6” of material conforming to the requirements of Item 304. The following estimated quantity has been carried to the General Summary for use as directed by the Engineer:

Item 304 – Aggregate Base..... 50 Cu Yd

Item 617 – Compacted Aggregate, As Per Plan

This item shall be used along the shoulders. Material shall be limited to reclaimed asphalt concrete pavement.

The actual depth used will vary depending upon existing conditions. For estimating purposes, an average depth of 1” will be used. Water, if needed, shall be applied as per 617.05 and included under Item 617 – Compacted Aggregate, As Per Plan.

The estimated quantity in the Pavement Sub-Summary has been carried to the General Summary as a contingency when low areas are encountered, for use as directed by the Engineer:

Safety Edge

In addition to the requirements of 401.12, attach a device to the screed of the paver that confines the material at the end gate and extrudes the asphalt material in such a way that results in a compacted wedge shape pavement edge of approximately 30 degrees (not steeper than 40 degrees). Ensure the device maintains contact with the existing surface, and allow for automatic transition to cross roads, driveways and obstructions. Do not use conventional single plate strike off.

Construction of safety edge can be omitted at locations where existing width of graded shoulder or berm is less than 12”. Projects with varying conditions should use safety edge where possible. Plan preparation has made every reasonable attempt to identify possible safety edge locations.

Use the TransTech Shoulder Wedge Maker, the Carlson Safety Edge End Gate, the Advant-Edger, the Troxler SafeTSlope or a similar approved-equal device that produces the same wedge consolidation results. Contact information for these wedge shape compaction devices is the following:

TransTech Systems, Inc 1594 State St. Schenectady, NY 12304 1-800-724-6306 www.transtechsys.com	Advant-Edge Paving Equipment LLC P.O. Box 9163 Niskayuna, NY 12309 (518) 280-6090 www.advantedgepaving.com
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Carlson Safety Edge End Gate 18425 50 th Avenue East Tacoma, WA 98446 (253) 875-8000	Troxler Electronic Laboratories, Inc. 3008 E. Cornwallis Rd. Research Triangle Park, NC 22709 1-877-TROXLER www.troxlerlabs.com
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If electing to use a similar device, provide proof that the device has been used on previous projects with acceptable results or construct a test section prior to the beginning of work and demonstrate wedge compaction to the satisfaction of the

Engineer. Short sections of handwork will be allowed when necessary for transitions and turnouts or otherwise authorized by the Engineer.

In addition to the requirements of 401.16, make the first roller pass 8 to 12 inches (200 to 300 mm) away from tapered edge. Do not roll the taper.

Item 209 – Preparing Subgrade for Shoulder Paving, As Per Plan

Prepare the shoulder for paving a consistent safety edge in both thickness and width.

Prior to paving the safety edge, grade an area 2’ wide, beginning at the edge of the paved roadway, to provide a level surface free of vegetation for construction of the safety edge. If necessary, excavate the graded area to the depth necessary to construct the safety edge. Compact the graded shoulder according to 617.05, or as directed by the Engineer.

This item of work shall also include the grading of the shoulder beyond the limits of the safety edge to eliminate high spots and provide positive sheet flow off the pavement into roadside ditches or drainage structures. This item is intended for preparation of the shoulder for placement of Item 617 – Compacted Aggregate, As Per Plan.

Any debris collected shall be removed and disposed of as specified in section 105.16 & 105.17 of the CMS.

Payment for the above work shall be made at the unit bid price for Item 209 – Preparing Subgrade for Shoulder Paving, As Per Plan and shall include all labor, tools, equipment and materials necessary to perform the work.

The estimated quantity in the Pavement Sub-Summary has been carried to the General Summary.

Item 442 – Asphalt Concrete Surface Course, 12.5mm, Type A (446), As Per Plan

The coarse virgin aggregate for this item shall be limited to a blend of air cooled blast furnace slag (ACBFS) or Trap Rock from Ontario and limestone. The Contractor shall use a minimum 60% of ACBFS or Trap Rock from Ontario with limestone comprising the remaining percentage. At least 50% of fine virgin aggregate for this item shall be limited to ACBFS or Trap Rock from Ontario.

Table 442.02-2 applies except No. 4 sieve requirements are 52 to 62 Total Percent Passing.

When ACBFS is used for a fraction of the coarse aggregate, provide a total asphalt binder content greater than or equal to 6.2 percent. If ACBFS makes up 100% of the coarse aggregate, apply the binder content requirements of C&MS 442.

Use a PG76-22M binder for this item.

Item 441 – Asphalt Concrete Surface Course, Type 1, (448), (DRIVEWAYS) As Per Plan

The use of gravel for coarse virgin aggregate is prohibited. Use a PG64-22 binder.

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Pavement (cont'd)

Item 254 – Pavement Planing, Asphalt Concrete, As Per Plan

This item shall be used to remove the existing asphalt overlay full width to a depth of approximately one and one half (1-1/2”) inches in the curbed section of SR-88. Refer to notes and descriptions on Sheet 20 of the plans for the areas which have modified planing depths and shall be as directed by the Engineer.

Areas which have transverse wedges (butt joints) may be removed in two passes as required for maintaining traffic, or plane one pass and utilize asphalt for maintaining traffic to ramp the transverse discontinuity. No additional payment shall be made for the second pass.

The depth of pavement planing may be variable across the pavement width, however the depth may be adjusted by the Engineer in order to achieve appropriate pavement crown for drainage and/or to minimize removal of material in areas with less than typical or average structural strength. All provisions stated in Item 254 – Pavement Planing shall be followed.

Abandonment of Existing Roadway Pavement Sensor

The Project Engineer shall contact the Roadway Services Engineer (216-584-2190) five (5) working days in advance of any work (planing, pavement repairs or paving) taking place at the location of the existing roadway pavement sensor. This notice will provide the Department sufficient time to disconnect the appropriate cables to de-energize the existing pavement sensor.

The existing roadway pavement sensor is located near the SR-528 intersection with SR-87. It is located in the northbound lane at approximately Station 365+09.

The existing pavement sensor can be abandoned in place, removed as part of a pavement repair or removed during planing operations as indicated in the plans or as directed by the Project Engineer.

There are no additional costs related to the abandonment of the existing pavement sensor. Removal effort and cost as part of a pavement repair or planing operations will be incidental to that item of work.

Item Special – Misc.: Roadway Mounted Pavement Sensor, Furnished and Installed

This item shall include the furnishing and installation of one (1) VX21-2 Roadway Mounted Pavement Sensor as well as any adjustments or calibration necessary to insure that the sensor is fully functional, communicates with the RPU and operates according to the manufacturer specifications.

The Project Engineer shall contact the Roadway Services Engineer (216-584-2156) five (5) working days prior to the installation of the new pavement sensor. This notice will provide the Department sufficient time to mark the exact location for the new sensor.

Maintenance of traffic for pavement sensor installation shall be done in accordance with the requirements of this plan, Item 614 – Maintaining Traffic and the OMUTCD.

All materials and installation methods shall conform to the manufacturer specifications. The Distributor for these sensors in Ohio is:

M.H. Corbin Inc.
8355 Rausch Drive
Plain City, OH 43064
(800-380-1718 or 614-873-5216)

Item Special – Misc.: Installation of Roadway Weather Information System Sensor (VX21-2) 1 Each

Item Special - Tack Coat, Trackless Tack

Description: this work consists of preparing and treating a paved surface with a trackless tack asphalt emulsion.

Furnish materials according to the Department’s approved list.

Meet all requirements of Item 407 - Tack Coat in the Construction and Materials Specifications required by the contract, except as noted below.

Material: Meet all properties of the approved manufacturer’s trackless tack specification requirements on file with the laboratory at time of placement.

Acceptance and sampling of materials: Supply certified test data to the Engineer and to the District laboratory demonstrating the trackless tack supplied was tested for and meets all material properties shown on the Department’s approved list.

During construction, ODOT personnel will sample from the distributor and supply to the district test lab a minimum of one quart of trackless tack for every 25,000 gallons used on the project. the contractor is responsible for supplying the proper plastic quart sampling container. Clearly mark on the sample with the manufacturer’s name, project number, and the words “trackless tack”.

Equipment: Follow manufacturer’s recommendations for correct distributor settings. thoroughly clean all equipment if previously used material charge is different than the proposed material.

Application of asphalt material: Uniformly apply the trackless tack with a distributor according to the manufacturer’s instructions. If trackless tack is stored for an extended period of time, prior to application, agitate or gently circulate the material.

Ensure all nozzles and spray patterns are identical to one another along the distributor spray bar. place the angle of the nozzle at a 15 to 30 degree angle to the spray bar axis to maximize overlap or as recommended by the nozzle manufacturer. Contact the manufacturer’s representative for required spray nozzle size and distributor and nozzle settings.

Apply at a rate of 0.04 to 0.1 gallons per square yard. Do not dilute trackless tack. recommended application temperature is 160 °f to 180 °f. Do not exceed 180 °f. the Engineer will approve the quantity, rate of application, temperature, distributor settings, and areas to be treated before application of the trackless tack coat. The Engineer will determine the actual application in gallons per square yard by a check on the project.

Performance of trackless tack: Determine the time to set for the material to become trackless. The Engineer will report any issues with excessive time to set, or after set issues with stickiness, or pickup of the tack to the District testing Engineer and new product engineer, Brad Young 614-351-2882.

If the certified test data fails to meet the lab testing criteria, or field samples fail to meet the lab test criteria, or the trackless tack fails to perform satisfactorily in the field, as noted above, the contractor will be required to replace and supply another approved trackless tack product for the remainder of the project at no additional cost to the Department.

Any failing trackless tack product will be removed from the Department’s approved list.

Longitudinal Joints (Flexible Pavement)

Longitudinal joints between a pavement lane and adjoining berm or speed change lane, and between a speed change lane and the adjoining berm shall be made the same day. All longitudinal joints shall be hot with the exception of one cold joint per roadway. Longitudinal joint locations shall be as approved by the Engineer. Each ramp shall have only one longitudinal cold joint located approximately halfway across the ramp.

The estimated quantity in the Pavement Sub-Summary for Item 875 – Longitudinal Joint Adhesive is carried to the General Summary to be used as outlined above.

Asphalt Concrete Surface Course Sealing Requirements

In addition to the gutter sealing requirements specified in SCD BP-3.1 and C&MS 401.15, after completion of the surface course, the contractor shall use a certified 702.01 PG binder to seal the following locations:

- All castings including but not limited to monuments, manholes, water valves, catch basins, curb inlets.
 - Butt joints and feather joints including bridge approaches.
 - Forward joint for driveway asphalt and trailing joint when butting to existing asphalt drive.
 - Perimeter of all pavement repairs or other asphalt inlays when pavement repairs/inlays are not overlaid with an asphalt concrete surface course.
 - All cold longitudinal joints between paved shoulders and guardrail asphalt.
- The material used shall be a certified 702.01 PG binder. The width of the sealer shall be 2-3 inches.

Any additional costs associated with the work identified in this note shall be included in the appropriate asphalt concrete surface course item of work.

Roadway

Item 608 - Curb Ramp, By Type, As Per Plan

Under this pay item, the Contractor shall be responsible for laying out American with Disabilities Act (ADA) compliant curb ramps and landings that comply with the requirements of ODOT Standard Construction Drawing BP-7.1. Curb ramp types are indicated on the plans for estimating purposes only. The type of curb ramp is subject to change due to field conditions, and shall be determined in the field to fit best. No additional payment will be made if a curb ramp of a type other than the type indicated on the plans is used.

Payment shall include any additional costs for surveying, construction layout and formwork necessary to comply with the requirements of ODOT C&MS, Standard Drawing BP-7.1 and project plans.

The time between the walk removal and new curb ramp placement shall not exceed 14 calendar days.

Any curb ramp not meeting ADA and ODOT requirements will be removed and replaced by the Contractor at his/her cost to the satisfaction of the Department.

The Department will pay for accepted quantities at the contract price for Item 608 – Curb Ramp, By Type, As Per Plan, Square Foot.

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Roadway (Cont'd)

Item 659 –Seeding, Misc.: Seeding and Mulching

This item shall be used to seed and mulch all disturbed areas adjacent to curb ramps, curb, and sidewalk, as directed by the Engineer. Use Class 1 Lawn Mixture.

At disturbed areas, remove top 2” of soil and replace with material conforming to 659.05. Provide a single application of commercial fertilizer per the requirements of 659.04. Placement of topsoil and application of fertilizer are incidental to this item.

The following estimated quantity has been carried to the General Summary for this purpose:

Item 659 – Seeding, Misc.:
Seeding and Mulching..... Lump Sum

Traffic Control

Item Special – Misc.: Inventory Existing Pavement Markings

Prior to planing and paving operations, the Contractor is responsible for conducting a field survey of the existing permanent markings excluding center line markings. This inventory shall be used for the placement of temporary markings and proposed final pavement markings. It is the intent of this plan to replace the pavement markings in the same location as the existing pavement markings excluding center line markings. Any staking or marking required to establish control points to ensure that markings are accurately placed is the responsibility of the Contractor.

The field survey shall be provided to the Project Engineer at least two weeks prior to the disturbance of the existing pavement markings for verification and approval. The Project Engineer will provide written concurrence once the inventory has been approved. The Project Engineer will also verify all permanent marking locations prior to the actual installation.

The Contractor must lay out all center lines using the most recent copy of the No Passing Zone log. Copies of the No Passing Zone log can be obtained from the District 12 Roadway Services Department or can be found on the web at: <http://www.dot.state.oh.us/districts/D12/HighwayManagement/Pages/NoPassingZones.aspx>

Install transverse lines at the spacing indicated on SCD TC-71.10.

The following quantity has been carried to the General Summary to be used as directed by the Project Engineer:

Item Special – Misc.: Inventory Existing
Pavement Markings Lump Sum

Item 621 – Raised Pavement Marker Removed

This item shall include the removal and disposal of RPMs.

The following estimated quantity has been carried to the General Summary:

Item 621 – Raised Pavement Marker Removed 330 Each

Item 632 - Detector Loop, As Per Plan

Prior to planing the pavement, the Contractor shall field survey the locations of the existing loop detectors within the project limits. The Project Engineer shall confirm these locations. The survey shall include the location of the loop, size of the loop, offset from curb and/or centerline and the location of the stub. A copy of this survey shall be given to the Project Engineer.

An estimated quantity of Item 632 – Detector Loop, As Per Plan has been provided as a contingency when wire is cut, broken, or destroyed due to pavement planing operations.

All stop line inductance detector loops shown in the plans shall be the Powerhead configuration shown on TC-82.10. The stop line detector loops shall not be wired to any other loops and shall have its own detector channel. The location of these loops shall be such that the powerhead is located at the stop line, not past it.

All dilemma zone inductance detector loops called for in the plans shall be the angular design detection (add) loop as shown on TC-82.10.

All stop line detection shall be tested for a bicycle target and all dilemma detection zones shall be tested for a motorcycle target.

When replacing the loop detectors, the loop detector wire shall be replaced to the pull box or pole, whichever is applicable, under item 632 and standard drawing TC-82.10. The new cable splice kits shall be included in this pay item.

The Contractor shall contact the Project Engineer and Tony Toth, District 12 Traffic Engineer (216)584-2220, Seven (7) days prior to pavement operations through an intersection to adjust signal operation as needed. The detector loops shall be placed in the surface course.

The District 12 Traffic Department will lay out the new loop locations for the contractor. Contact the Project Engineer and Tony Toth, District 12 Traffic Engineer (216)584-2220, seven (7) days prior to placement of loops.

Refer to the below list for approximate locations and quantities. These locations are from record plans and field verification is needed to confirm location, orientation and function.

<u>APPROXIMATE SIZE AND COUNT OF PROPOSED DETECTOR LOOPS</u>	<u>6' X 20' POWERHEAD DETECTOR LOOP</u>	<u>6' X 40' POWERHEAD DETECTOR LOOP</u>	<u>ANGULAR DESIGN DETECTION LOOP (A.D.D.) A = 4.5</u>
<u>INTERSECTION</u>			
U.S.-422		2	
S.R.-87	2		1
TOTALS:	2	2	1

The following estimated quantity have been carried to the General Summary to be used as directed by the Engineer:

Item 632 - Detector Loop, As Per Plan 5 Each

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Maintenance of Traffic

Item 614 – Maintaining Traffic

Generally the Contractor shall conduct his operations as to complete the proposed improvement with a minimum of hazard, delay and inconvenience to the motorists using the highway affected by the work done under this contract. In addition to the construction and material specifications, the following specific provisions are mandatory.

I. Notification

Since functional traffic control is a major concern on this project, it is essential that the motoring public be adequately forewarned of future lane closures and traffic constrictions. Therefore, the Contractor shall submit a written schedule to the Engineer, responsible law enforcement agencies, and the ODOT Public Information Office (216-584-2007) indicating the locations and dates of the lane closures at least 3 days prior to the implementation of any such closures.

Use portable changeable message signs to alert motorists 3 days prior to the implementation of any changes such as lane closures or other restrictions.

II. Work Hours

The Contractor is not permitted to work at night. Limit work hours to daylight hours between 7:00 AM and 9:00 PM, Monday through Friday or between 8:30 AM and 7:00 PM on Saturday and Sunday.

III. Lane Closure, Planing and Paving Restrictions

- 1. All closures shall be in accordance with the applicable Standard Construction Drawing(s).
- 2. All through traffic lanes shall be kept open at all times except during hours of construction.
- 3. Pedestrian traffic shall be permitted and accommodated on at least one side at all times.

Notwithstanding the above, no lane closures shall occur during the period beginning at 12:00 noon on the day preceding and continuing until noon on the following legal holidays and holiday weekends such as Memorial Day, Fourth of July and Labor Day. Furthermore, no lane closures shall be implemented or in place during increased traffic volumes caused by special events or when the Engineer deems the climatological conditions too hazardous.

IV. Maintenance of Traffic Systems

A. When Required

Whenever any part of the traveled surface is being worked upon or is otherwise not suitable for safe and convenient use by vehicles, traffic control devices sufficient to protect such areas to assure the safe and convenient passage of vehicular traffic shall be installed and maintained. Such traffic control devices and the manner in which they are used shall be consistent with these plans and the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways, hereinafter referred to as the OMUTCD. The traffic control device system shall constitute the minimum provisions for traffic control for each particular situation. Whenever the Engineer deems it necessary especially where a grade, curve, or merge conditions exists, he may direct that additional or alternative devices be used.

B. Conditions

During all parts of this project, flaggers, signing, barricades, flashing arrows, etc. shall be located as indicated in the OMUTCD or as shown in the Standard Construction Drawings. Two-way traffic shall be maintained at all times.

C. Advance Warning Signs

All advance warning signs for any condition which restricts traffic shall be erected before any such restriction is put into effect. All such signs shall be covered or removed from the view of traffic whenever they are not applicable.

D. Flashing Arrow Requirement

Whenever any part of the traveled surface is closed, the motorists shall be warned and directed by the Contractor through the use of one flashing arrow for each lane closed. Additionally, the provisions set forth in the OMUTCD and the applicable Standard Construction Drawings shall be met.

E. Flaggers and Law Enforcement Officers

At least two flaggers are required for each closure. The Contractor shall furnish additional flaggers as directed by the Engineer. Law Enforcement Officers (LEO's) shall be required for traffic direction only under the following circumstances: (1) if signals are non-operational, or (2) if traffic must move against signal phasing.

F. Protection of Public

Personal cars shall not be parked within the R/W.

G. Failure to Comply

If there is any failure to comply with provisions for traffic control set out in these plans and notes, or with the provisions of the OMUTCD, the highway in the vicinity of the work area shall not be considered in a condition for the safe and convenient use by the traveling public. Any failure to keep the highway, in the vicinity of the work area, in a condition for the safe and convenient use by the traveling public shall be considered a breach of this contract. Work shall be suspended until the Contractor complies with the provisions of the aforementioned items.

V. Maintenance of Traffic Materials

A. Signs

Sign dimensions and specifications, including letter sizes, shall be as provided in the OMUTCD or in design drawings provided by the Department of Transportation. The signs shall be subject to approval of the Engineer prior to the start of the project.

B. Sign Supports

Sign supports shall be of sufficient size and mass as to support the signs at the appropriate height. Supports shall be as shown on the Standard Construction Drawings.

C. Flashing Arrows

Whenever any part of the traveled surface is closed, the motorist shall be warned and diverted by the Contractor through the use of one flashing arrow barricade for each lane closed. The Contractor shall refer to Supplemental Specification 821 and 921 and the provisions set forth in the OMUTCD for all information regarding furnishing, maintaining, and use of flashing arrow barricades. Payment for the above shall be included in the lump sum bid for Item 614 – Maintaining Traffic.

D. Drums

Drums shall be in accordance with pertinent sections of the OMUTCD. All costs for installing, maintaining and subsequent removal of said drums shall be included in the lump sum bid price for Item 614 – Maintaining Traffic.

E. Cones

Cones, if utilized, shall be located as shown in the OMUTCD and the Standard Construction Drawings.

F. Flashers

Flashers shall be 12 volt battery-operated models with 7 inch diameter yellow lenses illuminated by rapid intermittent flashers of short duration and shall be placed on all signs at all times as required by the OMUTCD and the Standard Construction Drawings.

VI. Payment

Payment for providing, erecting, maintaining and removing temporary maintenance of traffic control devices shall be made under the lump sum price bid for Item 614 – Maintaining Traffic.

Lanes Open During Holidays or Special Events

No work shall be performed and all existing lanes shall be open to traffic during the following designated holidays or events:

Christmas	New Years	Mother's Day
Memorial Day	Fourth of July	Easter
Labor Day	Thanksgiving	

The period of time that the lanes are to be open depends on the day of the week on which the holiday or event falls. The following schedule shall be used to determine this period:

Day of the Week	Times All Lanes Must Be Open to Traffic
Sunday	12:00 Noon Friday through 12:00 Noon Monday
Monday	12:00 Noon Friday through 12:00 Noon Tuesday
Tuesday	12:00 Noon Monday through 12:00 Noon Wednesday
Wednesday	12:00 Noon Tuesday through 12:00 Noon Thursday
Thursday	12:00 Noon Wednesday through 12:00 Noon Monday
Friday	12:00 Noon Thursday through 12:00 Noon Monday
Saturday	12:00 Noon Friday through 12:00 Noon Monday

No extensions of time shall be granted for delays in material deliveries, unless such delays are industry-wide, or for labor strikes, unless such strikes are area-wide.

Should the Contractor fail to meet any of these requirements, the Contractor shall be assessed a disincentive in the amount of \$50 for each minute the above described lane closure restrictions are violated.

Suspension of Work

If the Contractor fails to comply with the provisions for traffic control as set forth in these plans or with provisions of the OMUTCD, the Engineer shall suspend work until the Contractor complies with the necessary requirements.

Maintenance of Traffic Control Zones

The Contractor shall be responsible to maintain the signs, drums and temporary pavement markings at the locations detailed in the plans or specified in the Standard Drawings. When the Contractor is notified of deficiencies he shall correct the deficiencies as soon as possible, preferably within 12 hours and no later than 24 hours.

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Maintenance of Traffic (cont'd)

Construction Traffic

All construction traffic shall use acceptable truck routes to access the construction area. Use of local residential streets is strictly prohibited unless allowed in writing by the local enforcement authority.

Contractor's Equipment – Operation and Storage

Vehicles and equipment shall always move with, and not across or against the flow of traffic. Vehicles and other equipment shall not park or stop except within designated work areas; and shall not enter and leave work areas in a manner which will be hazardous to, or interfere with the normal traffic flow. Personal vehicles will not be permitted to park within the right-of-way except in specific areas designated by the Engineer.

Equipment, vehicles and materials shall not be stored or parked within 30 feet of the traveled way unless 6 feet behind PCB or guardrail.

All work vehicles and equipment that enters the work zone more than once a day must be equipped with at least one flashing, rotating, or oscillating amber light that is visible in all directions of traffic for at least one quarter of a mile, day or night.

Alternate Methods

If the Contractor so elects, he may submit alternate methods for the maintenance of traffic, provided the intent of the provisions is followed and no additional inconvenience to the traveling public results there from. No alternate plan shall be placed into effect until approval has been granted in writing, by the Director.

All items proposed for use under these provisions must comply with current Department standards for their use when the plan detail, Standard Construction Drawing or other bid document governing their use is not provided as part of the bid package.

Work Zone Markings

The following estimated quantities have been carried to the General Summary for use at locations identified by the Engineer for work zone pavement markings per the requirements of CMS 614.04 and 614.11. Place temporary markings at the same locations as the proposed permanent markings.

After the planing is completed, (1 applications total), use the following temporary markings:

Item 614 – Work Zone Center Line, Class I, 642 Paint.....	6.04	Mile
Item 614 – Work Zone Edge Line, Class I, 642 Paint	11.85	Mile
Item 614 – Work Zone Stop Line, Class I, 642 Paint	152	Ft

After the surface course is placed, use the following temporary markings:

Item 614 – Work Zone Center Line, Class III, 642 Paint.....	6.04	Mile
Item 614 – Work Zone Edge Line, Class III, 642 Paint	11.85	Mile
Item 614 – Work Zone Stop Line, Class III, 642 Paint	152	Ft

Permanent Pavement Markings

After placing the surface course, the Contractor may place permanent pavement markings instead of placing work zone pavement markings, which shall be non-performed at these locations.

Major Work Items

The following major work items will require traffic maintenance which shall be incorporated into the Contractor's sequence of operations.

- A. Completion of pavement repairs
- B. Removal of existing RPMs
- C. Planing of asphalt concrete
- D. Curb Ramp Work
- E. Drainage Structure Replacement
- F. Adjustment/reconstruction of existing castings
- G. Placing of asphalt concrete
- H. Placing proposed pavement markings and raised pavement markers

Maintaining Traffic and Sequence of Operations – Asphalt Concrete

All asphalt concrete operations shall be conducted in a manner that will assure minimum danger and inconvenience to highway users. The procedure for the removal or placement of any existing or proposed asphalt course shall be such that no greater than 1-1/2" discontinuity in the elevation of the travelled surface shall be exposed to traffic.

Traffic shall not be permitted to cross any partial-width removal or resurfacing joint during the actual removal or paving operation except as necessary. Any partial-width longitudinal joints which must be exposed to traffic shall be ramped using Item 614 – Asphalt Concrete for Maintaining Traffic at a rate not steeper than 6:1.

Temporary transverse removal or paving joints which must be exposed to traffic shall be ramped using Item 614 – Asphalt Concrete for Maintaining Traffic as a rate not to exceed 1" in 10'.

For removal of existing overlays, a transition may be planed into the existing overlay and may be substituted for the asphalt ramps previously described, provided the transition is removed in a subsequent operation within 24 hours.

Whenever traffic is subject to partial width removals or overlays prior to full width completion, the Contractor shall provide W8-11-48 "UNEVEN LANES" signs (dual sign installation). Placement shall be as directed by the Engineer and included in the lump sum payment for Item 614 – Maintaining Traffic.

Whenever any part of the traveled surface is closed, the motorists shall be warned and diverted by the Contractor through the use of a flashing arrow, in addition to those provisions set forth in the OMUTCD, the Traffic Engineering Manual and the applicable Standard Construction Drawings.

Alternate Methods

If the Contractor so elects, he may submit alternate methods for the maintenance of traffic, provided the intent of the provisions is followed and no additional inconvenience to the traveling public results there from. No alternate plan shall be placed into effect until approval has been granted, in writing, by the Director.

All items proposed for use under these provisions must comply with current Department standards for their use when the plan detail, Standard Construction Drawing or other bid document governing their use is not provided as part of the bid package.

Truck Mounted Attenuator

When the Contractor is setting short term work zones and the shoulders (right or left shoulder) are less than 10 feet in width and are on a road with speeds 45 mph or higher, a Truck Mounted Attenuator (TMA) must trail the operation of setting the advance warning signs up or taking them down. This same truck must have a Type B flashing arrow panel mounted on it facing the rear of the truck.

The TMA must meet NCHRP 350 TL-3 criteria. The manufacturer's specification must be followed concerning the size of the truck and the connections to the TMA.

Continuous Access

The Contractor shall maintain safe and adequate driveways and walkways in order to provide continuous access for pedestrians, passenger vehicles, trucks, and safety equipment to all adjoining properties

The cost for all materials, equipment, and labor necessary to provide continuous access shall be included in the lump sum price for Item 614 – Maintaining Traffic.

Item 614 – Asphalt Concrete for Maintaining Traffic

This item shall be used to install and remove temporary asphalt ramps at butt joints, and drainage/utility castings, where required. Material shall be removed prior to the placement of the next course of asphalt. The following estimated quantity has been carried to the general summary to accomplish this item of work.

Item 614 – Asphalt Concrete for Maintaining Traffic..... 25 Cu Yd

Covering of Ground-Mounted Signs – General

When required by other items or incidentally to Item 614 – Maintaining Traffic, cover existing ground-mounted signs with plywood or OSB blanks (1/2" minimum thickness) covering 80% of the sign area and all of the sign legend. The use of low quality materials such as duct tape and black plastic is not permitted.

Surface Condition Signs

Erect a GROOVED PAVEMENT sign (W8-H15) 250 feet (75 m) in advance of any section of roadway where traffic must travel on a planed surface. Ensure these signs are in place before opening the roadway to traffic. Erect these signs on each entrance ramp and at intersections of through routes to warn traffic of this surface condition. Payment shall be made under the lump sum bid price for Item 614 – Maintaining Traffic

Item 630 – Signing Misc.: Additional Signs, Ground Mounted, As Directed by the Engineer

When additional signing is needed to maintain traffic, the Contractor shall furnish the sign or signs as directed by the Engineer. These signs shall be ground mounted and meet all the specifications of the plan, proposal and current year CMS.

Payment for this item shall include, but not be limited to, the cost to furnish and erect the sign, including driving posts or other approved methods of sign support, maintaining the sign and removal of the sign. The following estimated quantity has been carried to the General Summary for use as directed by the Engineer:

Item 630 – Signing Misc.: Additional Signs, Ground Mounted, As Directed by the Engineer 300 Sq Ft

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Maintenance of Traffic (cont'd)

Item 614 – Law Enforcement Officer (With Patrol Car) For Assistance

Use of law enforcement officers (LEOs) by Contractors other than the uses specified below will not be permitted at project cost. LEOs should not be used where the OMUTCD intends that flaggers be used.

In addition to the requirements of CMS 614 and the OMUTCD, a uniformed LEO with an official patrol car (car with top-mounted emergency flashing lights and complete markings of the appropriate law enforcement agency) shall be provided for the following traffic control tasks:

- During the entire advance preparation and closure sequence where complete blockage of traffic is required.
- During a traffic signal installation when impacting the normal function of the signal or the flow of traffic or when traffic needs to be directed through an energized traffic signal contrary to the signal display (e.g., directing motorists through a red light).

In addition to the requirement of CMS 614 and the OMUTCD, a uniformed LEO with an official patrol car (car with top-mounted emergency flashing lights and complete markings of the appropriate law enforcement agency) may be provided for the following traffic control tasks as determined and pre-approved by the engineer. Any LEO hours which are not pre-approved for the following purposes shall not be compensable:

- For lane closures: during initial set-up periods, tear down periods, substantial shifts of a closure point or when new lane closure arrangements are initiated for long-term lane closures/shifts (for the first and last day of major changes in traffic control setup). In general, LEOs should be positioned at the point of lane restriction or road closure and to manually control traffic movements through intersections in work zones.
- When construction vehicles are entering/exiting the zone directly from/into an open lane of traffic. If a lane has been closed to provide an acceleration/deceleration lane for the vehicle, the LEO will not be required.

LEOs should not forgo their traffic control responsibilities to apprehend motorists for routine traffic violations. However, if a motorist's actions are considered to be reckless, then pursuit of the motorist is appropriate.

The LEOs work at the direction of the Contractor. The Contractor is responsible for securing the services of the LEOs with the appropriate agencies and communicating the intentions of the plans with respect to duties of the LEOs. The Engineer shall have final control over the LEOs' duties and placement, and will resolve any issues that may arise between the two parties.

The LEO should report in to the Contractor prior to the start of the shift, in order to receive instructions regarding specific work assignments during his/her shift. The LEO is expected to stay at the project site for the entire duration of his/her shift. The LEO shall report to the Contractor at the end of his/her shift. Once the LEO has completed the duties described above and still has time remaining on his/her shift, the LEO may be asked to patrol through the work zone (with flashing lights off) or be placed at a location to deter motorists from speeding. Should it be necessary to leave the project site, the LEO shall notify the Engineer. The Contractor shall provide the LEO with a two-way communication device which shall be returned to the Contractor at the end of his/her shift.

LEOs with patrol car required by the traffic maintenance tasks above shall be paid for on a unit price (hourly) basis under Item 614, Law Enforcement Officer with Patrol Car for Assistance. The following estimated quantity has been carried to the General Summary.

Item 614 – Law Enforcement Officer
with Patrol Car for Assistance..... **40 Hours**

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

Any additional costs (administrative or otherwise) incurred by the Contractor to obtain the services of an LEO are included with the bid unit price for Item 614, Law Enforcement Officer with Patrol Car for Assistance.

Item 614 – Portable Changeable Message Signs, As Per Plan

The Contractor shall furnish, install, maintain and remove, when no longer needed, a changeable message sign, on site, for the duration of the project. The sign shall be of a type shown on a list of approved PCMS units maintained by the Director (Office of Materials Management). The Approved List of Portable Changeable Message Signs can be found on the ODOT website by clicking on the SERVICES menu, then clicking on Materials Management. The list contains Class A and B units with minimum legibility distances of 650 ft. and 475 ft., respectively.

Each sign shall be trailer-mounted and equipped with a functional dimming mechanism, to dim the sign during darkness, and a tamper and vandal proof enclosure. Each sign shall be provided with appropriate training and operation instructions to enable on-site personnel to operate and troubleshoot the unit. The sign shall also be capable of being powered by an electrical service drop from a local utility company. PCMS trailers shall be delineated on a permanent basis by affixing conspicuity tape conforming to CMS 614.03, in a continuous line on the face of the trailer as seen by oncoming road users.

Placement, operation, maintenance and all activation of the signs by the Contractor shall be as directed by the Engineer. The PCMS shall be located in a highly visible position yet protected from traffic. The Contractor shall, at the direction of the Engineer, relocate the PCMS to improve visibility or accommodate changed conditions. When not in use, the PCMS shall be turned off. Additionally, when not in use for extended periods of time, the PCMS shall be turned, facing away from all traffic, and shall display one or more Type G yellow retroreflective sheeting surfaces of 9-inch by 15-inch minimum size facing traffic.

The Engineer shall be provided access to each sign unit and shall be provided with appropriate training and operation instructions to enable ODOT personnel to operate and troubleshoot the unit, and to revise sign messages, if necessary.

All messages to be displayed on the sign will be provided by the Engineer. A list of all required pre-programmed messages will be given to the Contractor at the project preconstruction conference. The sign shall have the capability to store up to 99 messages. Message memory or pre-programmed displays shall not be lost as a result of power failures to the on-board computer. The sign legend shall be capable of being changed in the field. Three-line presentation formats with up to six message phases shall be supported. PCMS format shall permit the complete message for each phase to be read at least twice.

The PCMS shall contain an accurate clock and programming logic which will allow the sign to be activated, deactivated or messages changed automatically at different times of the day for different days of the week.

The PCMS unit shall be maintained in good working order by the Contractor in accordance with the provisions of CMS 614.07. The Contractor shall, prior to activating the unit, make arrangements, with an authorized service agent for the PCMS, to assure prompt service in the event of failure. Any failure shall not result in the sign being out of service for more than 12 hours, including weekends. Failure to comply may result in an order to stop work and open all traffic lanes and/or in the Department taking appropriate action to safely control traffic. The entire cost to control traffic, accrued by the Department due to the Contractor's noncompliance, will be deducted from moneys due, or to become due the Contractor on his or her contract.

The Contractor shall be responsible for 24-hour-per-day operation and maintenance of these signs on the project for the duration of the phases when the plan requires their use.

For this project, 2 PCMS Signs will be required for a total of 60 days each.

Payment for the above described item shall be at the contract unit price. Payment shall include all labor, materials, equipment, fuels, lubricating oils, software, hardware and incidentals to perform the above described work. The Contractor shall only be paid for PCMS units when they are in operation on the project as specified in the plans or by the Engineer.

Item 614 – Portable Changeable Message Sign,
As Per Plan..... **120 Days**

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Maintenance of Traffic (cont'd)

Work Zone Traffic Supervisor

Subject to the approval of the Engineer, the Contractor shall employ and identify, a certified Worksite Traffic Supervisor (WTS) before starting work in the field. The WTS shall be certified from one of the following organizations:

- 1. American Traffic Safety Service Association (ATSSA), 1-877-642-4637, <http://www.ATSSA.com/trainingcertification.aspx>
Certified Traffic Control Supervisor (TCS).
- 2. National Highway Institute, Design and Operation of Work Zone Traffic, 1-877-558-6873. http://www.nhi.fhwa.dot.gov/training/course_search.aspx
- 3. The Ohio Contractors Association, Traffic Control Supervisor (OCA/TCS) Work Zone Class, only if taken after May 5, 2004, 1-800-229-1388. <http://www.ohioContractors.org/default.aspx>
- 4. Ohio Laborers' Training, Traffic Control Supervisors Class, 1-800-635-7570, <http://www.ohiolaborerstraining.com/adv.htm>

The WTS position is established for the purpose of supervising the installation of the work zone, monitoring it and correcting any deficiencies in the work zone. The WTS shall oversee all operations that affect the movement of vehicular and pedestrian traffic through the work zone.

The WTS shall be present when the Contractor or Subcontractor installs a traffic restriction, lane closure, etc. In lieu of the WTS being present when a Subcontractor has a work zone in place, the Subcontractor may use his own personnel if that person is a certified WTS. The Contractor and Subcontractor must present a copy of his WTS certificate to the Project Engineer.

A WTS must be present for any closure or traffic restriction that takes place on the project.

The WTS may be a part of the working crew and must be in charge of setting up the work zone. After the work zone is in place the WTS may resume other duties not related to work zone traffic control. If the restrictions are short term, the WTS shall monitor the zone for compliance. Traffic control will be the WTS's main duty during implementation of the work zones. The WTS shall have the authority to have the deficiencies corrected as soon as possible.

The WTS shall provide the Project Engineer a sketch of the (TCP) traffic control plan every day there is to be a short term traffic restriction, lane closure etc. This TCP shall show how the work zones are to be implemented, approximate locations of the traffic control devices and what standard drawing or section from the Ohio Manual of Uniform Traffic Control Devices was referenced.

A 24-hour phone number shall be made available to the Project Engineer/supervisor in order to contact the WTS. The WTS shall have a pager and/or cell phone number provided to the Project Engineer.

Failure of the Contractor to comply with any of the above shall constitute cause for the Project Engineer / supervisor to deduct \$500.00 per day from money due the Contractor not as a penalty but as a liquidated damage.

Payment for the WTS shall be included under the lump sum for Item 614 – Maintaining Traffic.

CALCULATED	JAG
	CHECKED
EMK	
MAINTENANCE OF TRAFFIC NOTES	
GEA-88 / 528-02.07 / 01.29	
14 / 21	

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SHEET NUM.													PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	CALCULATED JAG	CHECKED EMK
6	7	8	9	10	12	13	16	17	20				01/STR /PV								
									235				235	202	30000	235	SF	ROADWAY			
									40				40	202	32000	40	FT	CURB REMOVED			
							8.49						8.49	209	60501	8.49	MILE	LINEAR GRADING, AS PER PLAN	8		
							8.49						8.49	209	72051	8.49	MILE	PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN	8		
									48				48	608	10000	48	SF	4" CONCRETE WALK			
									150				150	608	52021	150	SF	CURB RAMP, TYPE A2, AS PER PLAN	9		
									60				60	608	52071	60	SF	CURB RAMP, TYPE D, AS PER PLAN	9		
									85				85	609	24510	85	FT	CURB, TYPE 4-C			
	31												31	623	39501	31	EACH	MONUMENT BOX ADJUSTED TO GRADE, AS PER PLAN	7		
	4												4	623	39600	4	EACH	MONUMENT BOX RECONSTRUCTED TO GRADE			
				LS									LS	659	98700	LS		EROSION CONTROL			
													1000	832	30000	1,000	EACH	SEEDING, MISC.:SEEDING AND MULCHING EROSION CONTROL	10		
									16				16	611	07400	16	FT	DRAINAGE			
									2				2	611	98151	2	EACH	18" CONDUIT, TYPE B			
	16												16	611	98631	16	EACH	CATCH BASIN, NO. 3, AS PER PLAN	7		
	6												6	611	98634	6	EACH	CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN	7		
	5												5	611	99655	5	EACH	CATCH BASIN RECONSTRUCTED TO GRADE			
	4000												4000	SPECIAL	61199820	4,000	LB	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	7		
																		MISCELLANEOUS METAL	7		
		1900											1900	251	01000	1,900	SY	PAVEMENT			
		50											50	253	02001	50	CY	PARTIAL DEPTH PAVEMENT REPAIR			
							15489						15489	254	01001	15,489	SY	PAVEMENT REPAIR, AS PER PLAN	8		
							407						407	254	01001	407	SY	PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN, 1-1/2"	9		
													407	254	01001	407	SY	PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN, VARIABLE	9		
		50											50	304	20000	50	CY	AGGREGATE BASE			
							11666						11666	SPECIAL	40720500	11,666	GAL	TACK COAT, TRACKLESS TACK	9		
							127						127	441	50401	127	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS), AS PER PLAN	8		
							6063						6063	442	10001	6,063	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN	8		
							203						203	617	10101	203	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN	8		
			1										1	SPECIAL	69098000	1	EACH	COMPACTED AGGREGATE, AS PER PLAN	8		
							22160						22160	875	10000	22,160	LB	MISC.:INSTALLATION OF ROADWAY WEATHER INFORMATION SYSTEM SENSOR (VX21-2)	9		
							126332						126332	897	01011	126,332	SY	LONGITUDINAL JOINT ADHESIVE	9		
							804						804	897	01011	804	SY	PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN, 1/2"	8		
																		PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN, VARIABLE	8		
				5									5	632	26501	5	EACH	TRAFFIC SURVEILLANCE			
																		DETECTOR LOOP, AS PER PLAN	10		
									439				439	621	00100	439	EACH	TRAFFIC CONTROL			
													439	621	54000	439	EACH	RPM			
				330									330	621	54000	330	EACH	RAISED PAVEMENT MARKER REMOVED			
									11.85				11.85	646	10000	11.85	MILE	EDGE LINE, 4"			
									0.01				0.01	646	10100	.01	MILE	EDGE LINE, 4"			
									6.04				6.04	646	10200	6.04	MILE	LANE LINE, 4"			
									138				138	646	10300	138	FT	CENTER LINE			
									152				152	646	10400	152	FT	CHANNELIZING LINE, 8"			
									465				465	646	10500	465	FT	STOP LINE			
									70				70	646	10600	70	FT	CROSSWALK LINE			
									4				4	646	20300	4	EACH	TRANSVERSE/DIAGONAL LINE			
				LS									LS	SPECIAL	69098400	LS		LANE ARROW			
																		MISC.:INVENTORY EXISTING PAVEMENT MARKINGS	10		
						40							40	614	11110	40	hour	MAINTENANCE OF TRAFFIC			
					25								25	614	13001	25	CY	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	13		
						120							120	614	18401	120	DAY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC, AS PER PLAN	12		
													120	614	21000	120	DAY	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	13		
					6.04								6.04	614	21000	6.04	MILE	WORK ZONE CENTER LINE, CLASS I			
					6.04								6.04	614	21550	6.04	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT			
					11.85								11.85	614	22100	11.85	MILE	WORK ZONE EDGE LINE, CLASS I, 642 PAINT			
					11.85								11.85	614	22350	11.85	MILE	WORK ZONE EDGE LINE, CLASS III, 642 PAINT			
					152								152	614	26200	152	FT	WORK ZONE STOP LINE, CLASS I, 642 PAINT			
					152								152	614	26610	152	FT	WORK ZONE STOP LINE, CLASS III, 642 PAINT			
					300								300	630	97800	300	SF	SIGNING, MISC.:ADDITIONAL SIGNS, GROUND MOUNTED, AS DIRECTED BY THE ENGINEER	12		
													LS	614	11000	LS		INCIDENTALS			
													6	619	16011	6	MNTH	MAINTAINING TRAFFIC			
6													LS	623	10000	LS		FIELD OFFICE, TYPE B, AS PER PLAN	6		
													LS	624	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING			
																		MOBILIZATION			

GENERAL SUMMARY

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REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION				TYPICAL	LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA	209 LINEAR GRADING, AS PER PLAN	209 PREPARING SUBGRADE FOR SHOULDER PAVING, AS PER PLAN	254 PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN, 1-1/2" AVG.	254 PAVEMENT PLANING, ASPHALT CONCRETE, AS PER PLAN, VARIABLE	897 PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN, 1/2" AVG.	897 PAVEMENT PLANING, ASPHALT CONCRETE, CLASS A, AS PER PLAN, VARIABLE	SPECIAL TACK COAT, TRACKLESS TACK (0.08 GAL. / S.Y.)	442 ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, 1-1/2"	441 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS), 1" AVG.	875 LONGITUDINAL JOINT ADHESIVE	617 COMPACTED AGGREGATE, AS PER PLAN, 1" AVG.(2' WIDE)	CALCULATED JAG CHECKED EMK	PAVEMENT SUB-SUMMARY
								FT.	FT.	FT.	FT.	SQ. YD.	MILE	MILE	SY	SY	SY	SY	GAL	CY	CY	LB	CY		
				SLM		SLM																			
		1	SR-88 31+15	2.07	66+00	2.73	1	3485	40.0	40.0	40.0	15,489			15,489				1,239	645		871			
			End Curbed Section																						
		1	66+00	2.73	68+11	2.77	2	211	40.0	24.0	32.0	750					750		60	31		53			
		1	68+11	2.77	100+02	3.36	2,3,4	3191	24.0	24.0	24.0	8,509					8,509		681	355		798			
			SR-528																						
		1	100+02	1.29	264+20	4.40	2,3,4	16418	24.0	24.0	24.0	43,782					43,782		3,503	1,824		4,105			
			SUSPEND / RESUME WORK																						
		1	280+65	4.71	366+28	6.35	2,3,4	8563	24.0	24.0	24.0	22,833					22,833		1,827	951		2,141			
			PAVED SHOULDERS	SLM		SLM			SHLDRS													SHLD X 2			
			SR-88					SB + NB	8' LT+8' RT																
		1	66+00	2.73	68+11	2.77	2,3	211	16.0	16.0	16.0	375					375		30	16		106			
		1	68+11	2.77	100+02	3.36	2,3	3191	16.0	16.0	16.0	5,672					5,672		454	236		1,595			
			SR-528																						
		1	100+02	1.29	264+20	4.40	2,3	16418	16.0	16.0	16.0	29,188					29,188		2,335	1,216		8,209			
			SUSPEND / RESUME WORK																						
		1	280+65	4.71	366+28	6.35	2,3	8563	16.0	16.0	16.0	15,223					15,223		1,218	634		4,282			
			SAFETY EDGE	SLM		SLM					EDGE														
			SR-88					SB + NB	.5' LT+.5' RT		.5' LT+.5' RT														
		1	66+00	2.73	68+11	2.77	2,3	211			0.5+0.5	23	0.1	0.1						1.0			3		
		1	68+11	2.77	100+02	3.36	2,3	3191			0.5+0.5	355	1.2	1.2						15.0			39		
			DEDUCT FOR INTERSECTIONS,DRIVES,GR RUNS																						
		1	SR-88	2.73		3.36		-2239			0.5	-124	-0.4	-0.4						-5.0			-28		
			SR-528																						
		1	100+02	1.29	264+20	4.40	2,3	16418			0.5+0.5	1,824	6.2	6.2						76.0			203		
			SUSPEND / RESUME WORK																						
		1	280+65	4.71	366+28	6.35	2,3	8563			0.5+0.5	951	3.2	3.2						40.0			106		
			DEDUCT FOR INTERSECTIONS,DRIVES,GR RUNS																						
		1		1.29		6.35		-9725			0.5	-540	-1.8	-1.8						-23.0			-120		
			INTERSECTION EXTRA AREAS																						
		1	U.S.-422, West Apron, 31+15 LT.		2.07						CAD AREA	27				27			2	1					
		1	U.S.-422, East Apron, 31+15 RT.		2.07						CAD AREA	67				67				3					
		1	Center St., 36+53.97 LT.				15				CAD AREA	101				101			8	4					
		1	S.R.-168 (High St.), 42+06.21 LT.				15				CAD AREA	91				91			7	4					
		1	Hosmer Rd., 65+50 RT.				15				CAD AREA	121				121			10	5					
		1	Nash Rd., 88+64.67 LT.				15				CAD AREA	92						92	7	4					
		1	Turn Lane (SR-88 EB), 98+55 RT.				15				CAD AREA	132						132	11	6					
		1	Nash Rd., 100+01.7 RT.				15				CAD AREA	103						103	8	4					
		1	Farley Rd., 179+60.19 RT.				15				CAD AREA	93						93	7	4					
		1	Shedd Rd., 234+47.26 LT.				15				CAD AREA	106						106	8	4					
		1	Adams Rd., 307+79 RT.				15				CAD AREA	103						103		4					
		1	SR-87, West Apron, 366+27.5 LT.								CAD AREA	84						84	7	4					
		1	SR-87, East Apron, 366+27.5 RT.								CAD AREA	91						91		4					
			DRIVEWAYS EXTRA AREAS	SLM		SLM																			
		1	Driveways - SR-88	2.07		2.73		5' Avg.			20	411							33		17				
		1	Driveways - SR-88	2.73		3.36		5' Avg.			20	244							20		10				
		1	Driveways - SR-528	1.29		6.35		5' Avg.			20	2,400							192		100				
SUBTOTALS													8.49	8.49	15,489	407	126,332	804	11,666	6,063	127	22,160	203		
TOTALS CARRIED TO GENERAL SUMMARY													8.49	8.49	15,489	407	126,332	804	11,666	6,063	127	22,160	203		
PLAN SPLIT #1 TOTAL													8.49	8.49	15,489	407	126,332	804	11,666	6,063	127	22,160	203		
																									16 21

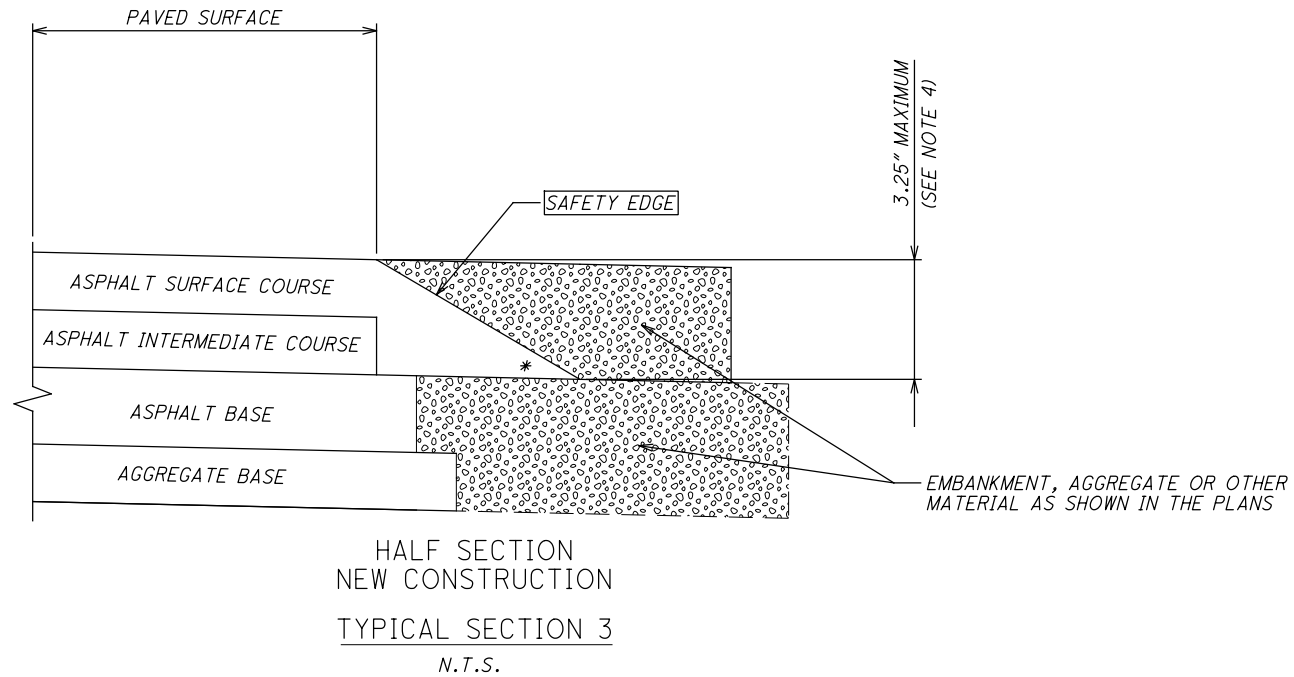
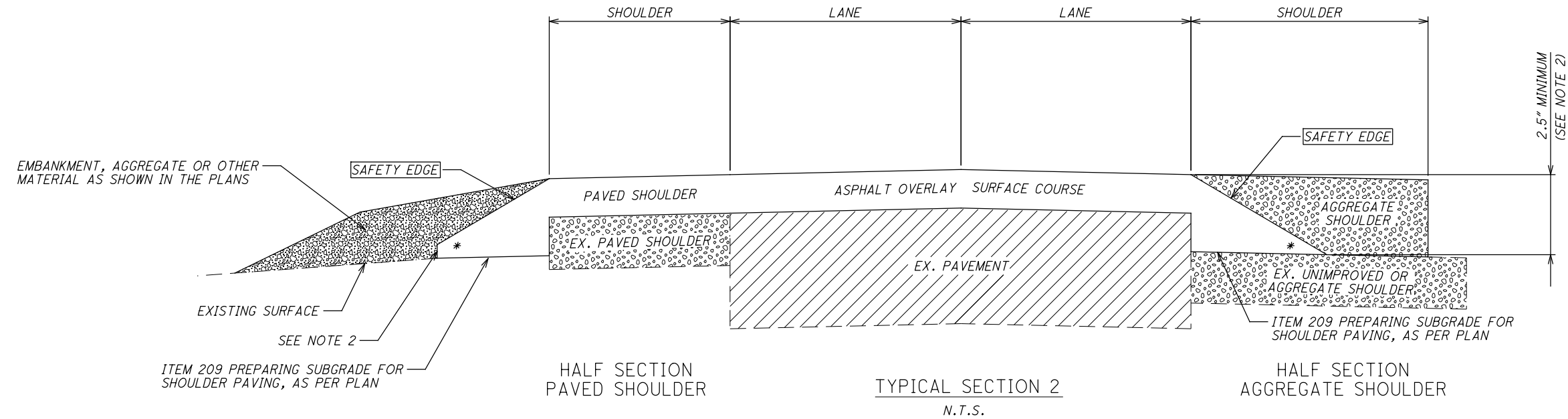
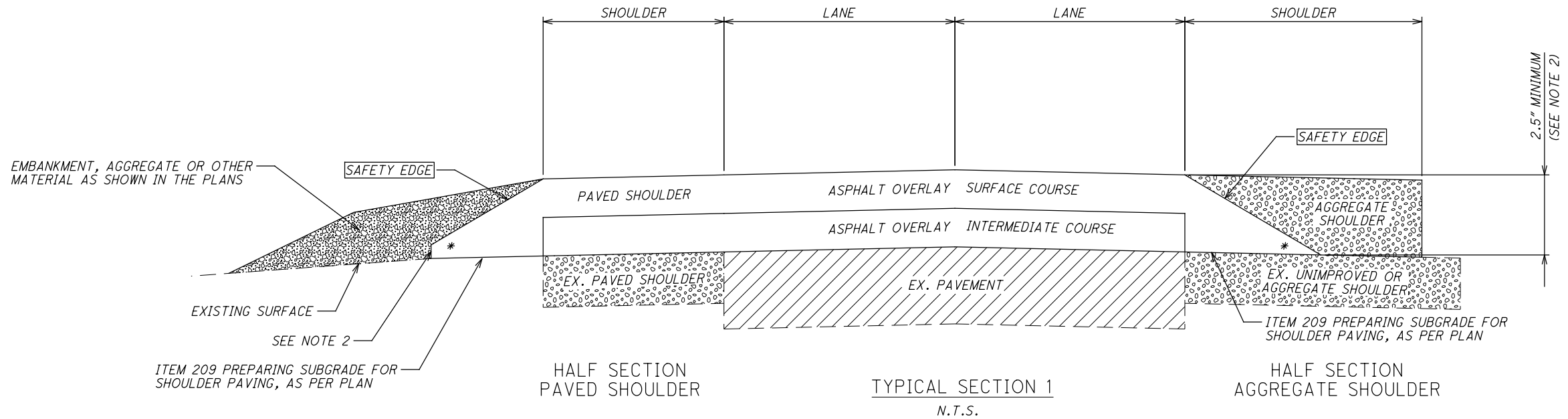
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NOTES:

- 1.) SAFETY EDGES ARE REQUIRED AT THE OUTSIDE EDGES OF THE PAVED ROADWAY (EDGE OF TRAVEL LANE OR EDGE OF PAVED SHOULDER).
- 2.) CONSTRUCT THE SAFETY EDGE THE FULL ASPHALT CONCRETE OVERLAY THICKNESS OR 2.5" (63MM) WHICHEVER IS GREATER, NOT TO EXCEED THE MAXIMUM SAFETY EDGE THICKNESS OF 6" (150MM). CONSTRUCT A NEAR-VERTICAL FACE BELOW THE SAFETY EDGE FOR THICKNESS GREATER THAN 6" (150 MM).
- 3.) BLADE AND SHAPE EXISTING SHOULDER MATERIAL TO FORM A UNIFORM SURFACE UNDER THE SAFETY EDGE PRIOR TO PLACEMENT OF THE ASPHALT CONCRETE OVERLAY.
- 4.) FOR NEW PAVEMENT CONSTRUCT THE SAFETY EDGE THE FULL THICKNESS OF THE SURFACE AND INTERMEDIATE COURSES, NOT TO EXCEED 3.25" (82 MM).

* 40° MAX



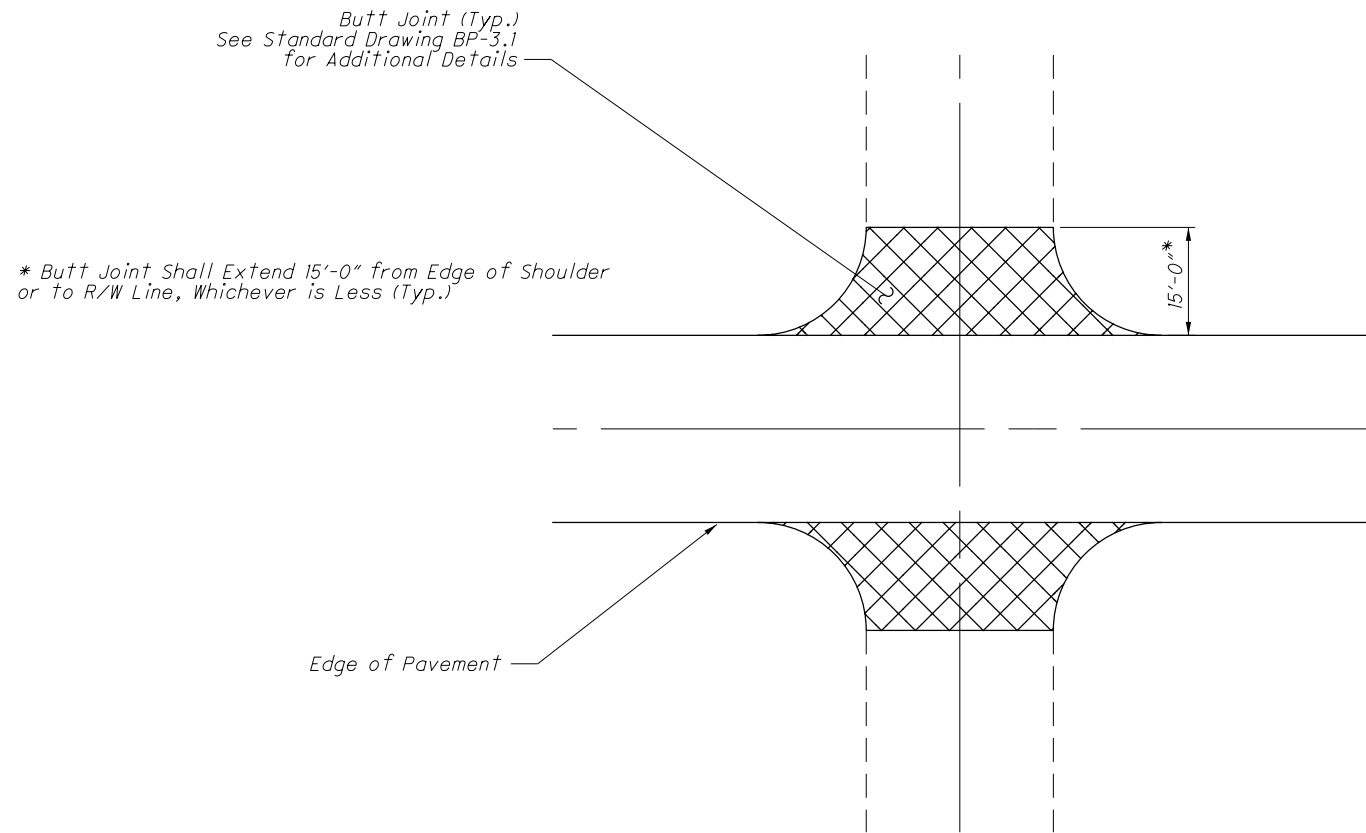
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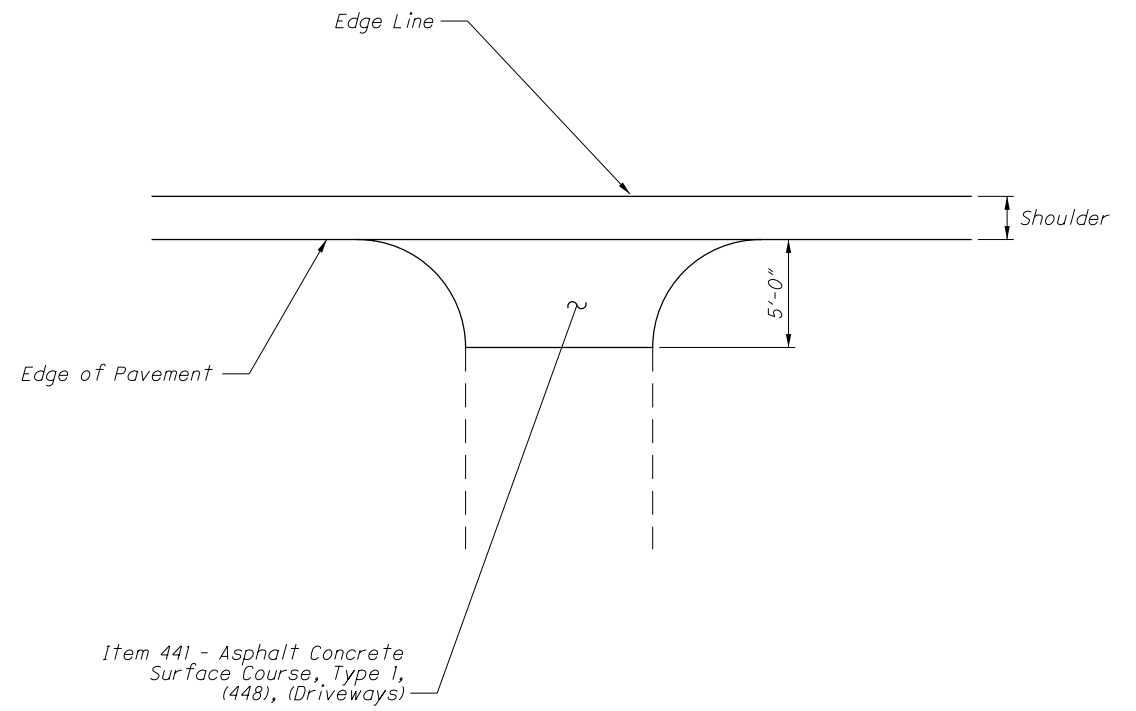
ASPHALT SAFETY EDGE DETAIL

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TYPICAL ASPHALT INTERSECTION DETAIL



DRIVEWAY APRON DETAIL

