**JOB ORDER SPECIFICATIONS**

**FOR**

**Line HAN 75-14.39 Pipeline Relocation along I-75**

**City of Findlay, Hancock County, OH**

**8 Inch Pipeline**

**FN405FJ Pipeline**

**Buckeye Project: R0471**

**July XX, 2015**

**1.0** **SCOPE OF WORK**

The *Contractor* shall furnish all supervision, labor, construction equipment, tools, and services necessary to perform all requirements in accordance with the engineered Contract Drawings, the Contractor’s Specifications - Parts 2, 3, 4, 5, 6, 15 and 16, *Buckeye’s* “Standard Construction Specification for Trenchless Pipeline Excavation, field conditions, permits, and these Specifications. This includes any item which is covered by descriptive information in these Specifications or any information transmitted by Contract Bulletins and/or Contract Addenda. The materials which are specifically labeled as furnished by *Buckeye* shall be received, stored, and installed by the *Contractor*.

This Contract includes but is not limited to the following **Job Order(s)**:

**Job Order No. 1: Pipeline Reroute**

1. *Contractor* shall install approximately 395 feet of 8-inch x 0.322” w.t., Grade X-52 pipeline by open cut and 180 feet of 8-inch x 0.322 w.t., Grade X-52 pipeline by trenchless means, two (2) – 8-inch x 0.322” w.t., 45 degree 3R, Grade WPHY-52 bends, and four (4) – 8-inch x 0.322” w.t., 90 degree 3R, Grade WPHY- 52 bends, using Dry Jack and Bore (auger bore) and conventional trenching methods *(The Contractor has the option of proposing an alternate means of trenchless crossing of I-75, See 2.1 below).* This pipeline relocation begins at approximately existing station no. +/-197+73 and ends at 203+12. All distances and locations are shown on the engineered Contract Drawings.

**Note:** Contractor to thoroughly review the geotechnical information (Buckeye and ODOT bore logs) included with the bid package when evaluating the trenchless method to use for the proposed crossings subsurface conditions.

1. The *Contractor* shall perform the auger bore installation for the location(s) shown on the engineered Contract Drawings and in accordance with **Section 17.2, “Trenchless Excavations: Dry Jack and Bore”**.

**2.1 Bid Option No. 1: Alternate Means of Trenchless Crossing of I-75**

* + 1. Contractor has the option of proposing an alternate Trenchless method of crossing I-75 other than an 8-inch Dry Jack and Bore, in accordance with Section 17.0 Trenchless Excavations.
		2. Contractor shall include in its bid the preparation of engineering drawings and calculations by the contractor’s engineer that are associated with a change in trenchless crossing method of I-75 and submit to Buckeye for review and approval.
		3. Contractor shall be responsible for any permitting required with the change in proposed trenchless crossing method of I-75, including ODOT.
		4. Contractor shall be responsible for securing additional temporary work space if needed to complete the alternate trenchless crossing method.
		5. Contractor shall supply any additional materials needed to complete the alternate Trenchless crossing method.
1. If the contractor opts to install by Directional Drill, the *Contractor* shall perform a sizing plate run of the completed drill sections after pullback in accordance with **Section 17.1, “Trenchless Excavations: Directional Drills”**.
2. *Contractor* to string, fabricate and install the new carbon steel pipeline in accordance Contractor’s Specifications - Part 3, “Technical Specifications” and as shown on the engineered Contract Drawings.
3. The *Contractor* is responsible for grubbing, clearing, and grading as shown in the engineered Contract Drawings for laying and drilling of pipe. The *Contractor* shall remove and/or chip all brushes that are displaced by clearing and grubbing. All disposal techniques will follow landowner, municipality, federal government, or applicable authority requirements. See Property Line List for specific landowner requirements and **Section 10.0, “Clearing”** for additional details.
4. The Contractor shall be responsible for picking up the line pipe and fittings from material suppliers in Houston, TX.
5. Additionally, the *Contractor* shall be responsible for the loading, transporting, off-loading, and secure storage of Buckeye supplied materials (See **Section 5.0, “Buckeye Furnished Materials and Equipment”**).
6. *Contractor* to perform all excavation necessary for potholing (or equivalent excavation method required for foreign line locating) as well as the Jack and Bore Pits, and general pipeline installation. Ditching shall be performed in accordance to Contractor’s Specifications - Part 6.6, “Ditching”.
7. *Contractor* to perform shoring, trench-box, or sloped excavation which may be required for the safe pipeline installation in compliance with OSHA Safety Standards as per the dimensions shown on the Contract Drawings. Excavations requiring shoring shall be treated as confined spaces. All shoring plans shall be reviewed and approved by *Buckeye’s Site Representative* prior to performing shoring.
8. Contractor shall be prepared to handle trench dewatering, especially for the west tie-in and the bore pits for I-75. Contractor to provide a unit price per linear foot for a well point system, including any permitting requirements for water draw and discharge.
9. *Contractor* shall coat and Holiday test pipeline prior to installation in accordance to these Specifications and the coating supplier specifications. Holiday testing as described in **Section 14.0, “Holiday Test”.** Coating repairs for weld joints, drill pipe and fittings using techniques as described in **Section 13.0, “Pipe Coating, Joint Wrapping and Coating Repair”** and **Section 16.0, “Bending and Laying”.**
10. Install pipeline warning mesh in trench above pipeline, where the pipe is installed by open cut trench installation.
11. The *Contractor* shall follow all design information and the Property Line List for work on each landowner’s property. The *Contractor* shall be responsible for construction damages and related charges which have not been specifically identified and provided for in these Specifications and the Property Line List. Any questions or problems with this information should be discussed with the *Buckeye ROW Representative* prior to initiating construction activity on the landowner property in question.
12. The *Contractor* shall install stabilized Construction Entrances at each of the temporary workspaces / license areas, or as specified on the engineered Contract Drawings. Contractor to use stone and filter fabric to construct stabilized entry/exit.
13. Install and maintain for the duration of the project all applicable temporary erosion control measures in accordance to Contractor’s Specification - Part 6.10, “Erosion Control” or as shown on the engineered Contract Drawings.
14. Support power or telephone/communication poles in close proximity to pipeline excavation. Local codes and/or utility standards must be used by the *Contractor* for this work.
	1. This includes protecting / supporting of the radio club’s tower guide wires and associated foundations during construction.
15. Support and protect all non-Buckeye pipelines, foreign underground (public and private) utilities and drainage structures, in close proximity to pipeline excavation and prevent damage or silting of existing driveway culverts. Local codes and/or utility standards must be used by the *Contractor* for this work.
	1. This includes locating and protecting underground power and communication cables associated with the Radio Club towers within the project LOD.
16. Support and protect all foundations in close proximity to the pipeline excavation.
	1. This includes the billboard foundations in the Southwest Corner of the Radio Club Property on the east side of I-75.
17. Contractor shall be responsible for installing temporary security fence, offset as necessary to the edges of the project LOD, in place of any existing fence during construction. This includes ODOT’s limited access right of way fence line.
18. Contractor shall install temporary management of traffic control measures, as required by ODOT, while working inside the ODOT I-75 limited access right of way limits.
19. Contractor shall construct a stone access road, from the paved Radio Club drive to the area of the existing billboard in the southwest corner of the Radio Club property, for access to the east side of I-75. The access road will be installed, restored and left in place to access the billboard in the future. The road shall be installed as shown on the engineered Contract Drawings.

**Job Order No. 2: Hydrostatic Testing**

1. *Contractor* to hydrostatic pressure test the completed pipeline section to a minimum of 1,850 psig and a maximum of 1,950 psi for 8 hours as defined in **Section 21.0, “Pipeline Pressure Test”.**
2. *Contractor* to hydrostatic pressure each completed pull back section (if the crossing is completed by HDD) prior to pullback to a minimum of 1,850 psig and a maximum of 1,950 psi for 4 hours as defined in **Section 21.0, “Pipeline Pressure Test”.**

**Job Order No. 3: Nitrogen Purge, Tie-ins and Re-commissioning**

1. Assist Buckeye Operations Personnel in nitrogen purging of the system. Perform final tie-ins of the new pipeline section. Assist *Buckeye Operations Personnel* in re-commissioning the system. All items to be performed in accordance to Contractor’s Specification – Part 3.16, “Tie-in to Existing Piping”.
2. TOR hot tap fittings must be installed on the existing line prior to the nitrogen purge. The existing line shall be hot tapped at these fittings in preparation for the Nitrogen blow down. The contractor shall provide the TD Williamson 101 Tapping Machine and 2-inch ball valves as needed. The line shall be “sniffed” through these fittings prior to tie in to ensure a 0 LEL. The existing line shall then be cold cut for tie-ins. A vapor barrier must also be used to mitigate the risk of any combustible vapors in the tie in area.

**Job Order No. 4: Abandon Pipe Removal / Grout and Abandon In Place**

1. Contractor shall remove approximately 374 LF of the existing 8-inch pipe, including any pipe removal necessary to complete tie-in of newly installed pipe and cap any remaining pipe with steel plate as shown on the engineered Contract Drawings. Removal work to be performed in strict accordance to Contractor’s Specification - Part 16, “Pipe Removal Specification”.
2. Contractor shall cap and grout slurry fill approximately 165 LF of the existing 8-inch pipeline and 12-inch casing under I-75 to abandon the crossing in place. Contractor responsible for providing all materials and fittings required to grout fill and abandon the crossing in accordance with the Contract Drawings and ODOT permit requirements for working within ODOT right of way.

**Job Order No. 5: Backfill, As-builts, and Final Clean-up**

1. *Contractor* to backfill newly installed pipeline as shown on the engineered Contract Drawings and noted in **Section 19.0, “Backfill”**.
2. *Contractor* to return pipeline ROW and temporary work space (TWS) elevation, grade, and contour to its original state prior to excavation for pipeline installation and reshape all ditch lines to ensure proper grade and water flow as described in **Section 19.0, “Backfill”**.
3. The Contractor shall provide suitable spoil to restore the grade after the existing pipeline has been removed.
4. Pending testing all removed materials shall be handled in accordance to Contractor’s Specification – Part 4.6, “Protective Work Practices – Asbestos Containing Materials”. Removed pipe shall be cut into 10’ lengths, and the ends shall be wrapped in plastic. Any disturbed coating must be bagged in approved asbestos disposal bags. The *Contractor* shall line roll offs at Buckeye’s Novi Terminal with plastic and load the pipe and removed coating into the roll offs. Buckeye will then be responsible for processing. All materials and roll offs to be provided by Buckeye.
5. *Contractor* is responsible for restoring drainage ditch banks to previous undisturbed condition unless otherwise specified in these Specifications or the engineered Contract Drawings. Restore destroyed vegetation by reseeding and fertilizing in accordance with Contractor’s Specifications – Part 6.12, “Permanent Erosion Control Measures”.
6. As-built drawings will be completed by Buckeye’s Contract Engineer. The *Contractor* shall maintain accurate red-line drawings and a complete weld map. See **Section 26.0, “As-Built Information”** for the non-directional drill portion of the pipeline relocation.
7. For the directional drill portion of the pipeline relocation, as-built drawings shall be generated in accordance with Section 17.0, “Trenchless Excavations”. See **Section 26.0, “As-Built Information”.**
8. Upon completion of work, the *Contractor* shall demobilize all equipment and unused materials.
9. Transport any remaining materials including pipeline that has been removed to *Buckeye’s* Lima, Ohio Station.

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**2.0** **GENERAL INFORMATION AND REQUIREMENTS**

1. It is intended that the work proposed be executed in a manner which minimizes any adverse effects on the natural environment and with the least possible public inconvenience. It is the responsibility of the *Contractor* to ensure that all his personnel are sufficiently instructed so that the construction activities are carried out in a manner consistent with the conditions of the Contract stated herein.
2. All construction activities are to be confined to the limits of easements and the limits stated in **Section 9.0, “Work Space Restrictions”**.
3. The edges of theright-of-way (ROW) and temporary work space (TWS) shall be staked by *Others/Buckeye* in accordance with local conditions. The *Contractor* may be required, in certain areas, to install temporary fencing to reduce the possibility of equipment trespass. The *Contractor* shall direct his personnel to observe the limits of the ROW and TWS at all times.
4. The length of the *Contractor’s* construction spread will be controlled by *Buckeye’ Site Representative*, in accordance with local conditions and requirements. It is the intent of *Buckeye* to ensure that backfill of the trench is completed as quickly as possible and restoration is initiated as soon as backfill and compaction have been completed. It is important to note that all structures are to be as-built by the ***Others*** and witnessed by the *Buckeye Site Representative*. Sufficient time should be allowed before backfilling to accomplish this.
5. The *Contractor* should duly note that on developed land tracts, it is the intent of *Buckeye* to minimize damage to the topsoil and that the *Contractor* may be requested by *Buckeye* to suspend operations during and after periods of heavy rain until normal working conditions have been restored. The first 12 inches of topsoil in excavated areas is to be removed, segregated and placed back on top.
6. All equipment fueling and maintenance activities shall be carried out at such locations, and in such a manner as, to avoid contamination of the water table, soils or watercourses.
7. The *Contractor* shall obtain a work and lay down location for the Contractor’s construction trailer(s), for storage of materials, and for storage of equipment.
8. The *Contractor* shall avoid driving any equipment over existing utility or pipeline corridors. Any crossings that are necessary shall be matted to avoid any damage to existing structures in the corridor.
9. The *Contractor* shall obtain all the necessary work permits and licenses, as required for the project, including right of entry permits (except as noted in **Section 3.0, “Work Not Included”**).
10. The *Contractor* shall control and direct traffic in accordance with all plant, industrial estate, local, and municipal standards. The *Contractor* shall coordinate their work with any other construction activity that may be taking place concurrently at the site.
11. The *Contractor* shall be responsible to comply with and follow the transmission line, railroad, State Highway and any other local safety requirements and training as may be required by permit for the work. In addition, all workers will need to complete *Buckeye’* construction safety training.
12. The *Contractor* shall be responsible for all of his personnel to attend the safety training of each of the aforementioned. Orientation training and safety meetings will be required for all personnel and shall be included in the *Contractor's* bid.
13. The *Contractor* shall contact all necessary parties per the Property Line List, utility operators, third party pipeline owners, and all local one call systems at least 72 hours prior to construction to allow all these parties the opportunity to mark their facility and/or witness the construction activity.

***Buckeye* has made every effort to locate and show all utilities and other facilities on the engineered Contract Drawings. However, this does not remove or diminish the responsibility of the *Contractor* to locate all existing below ground pipelines, utilities, and other facilities which may not show on the engineered Contract Drawings.**

A written log of all one calls shall be maintained during construction and given to the *Buckeye Site Representative* at the conclusion of the job.

1. The *Contractor* shall perform all work to be in compliance with all local, municipal, federal government, or applicable authority environmental statutes (i.e., storm water mitigation, water disposal, soil contamination/environmental hazards, and for stream crossings). The *Contractor* is also advised to know and follow the terms and conditions for all permits and laws as they pertain to excavated materials in all areas which will be disturbed.
2. The *Contractor* shall follow all private property, permit and code requirements including, but not limited to, those that are listed in the Property Line List and in **Section 9.0, “Work Space Restrictions”** and shall observe the Property Line List restrictions (e.g., land use restrictions, hours of operation, etc.)
3. The *Contractor* shall provide access to all construction areas and will be responsible to negotiate with landowners for any additional laydown areas, work areas, and property restoration.

**3.0** **WORK NOT INCLUDED**

1. All temporary work easements, ROW agreements and design approvals from the property owners, corporations, and local municipalities will be provided by *Buckeye* and are reflected in these Specifications and the Property Line List.
2. All construction and environmental permits and notices as required by the *Federal, State, and local agencies* will be provided by *Buckeye*.
3. Construction staking will be provided by ***Others*** except as noted in these Specifications. See **Section 7.0, “Construction Survey”**.
4. *Buckeye* will supply all material listed in **Section 5.0, “Buckeye Furnished Materials and Equipment”** of these Specifications. All other materials shall be supplied by the *Contractor*.
5. *Buckeye Operations Personnel* will issue work permits to the *Contractor* on a daily basis for all work impacting existing operating pipelines. The *Contractor* shall not proceed with any of this work without the proper permits and approval from *Buckeye*.
6. *Buckeye* will nitrogen purge and commission the pipeline with the *Contractor’s* assistance.
7. *Buckeye* will dispose of the hydrostatic test water. The *Contractor* shall provide 48 hours’ notice so that *Buckeye* can schedule the appropriate number of vacuum trucks and transport vehicles. The Contractor shall transfer the water from the pipeline to the transports.
8. *Buckeye* will provide radiographic services to perform 100% x-ray. The *Contractor* shall coordinate scheduling of radiographic services with *Buckeye’s Site Representative*. The *Contractor* shall make best efforts to ensure a sufficient number of welds are available for x-ray prior to requesting radiographic services.

**4.0** **CONTRACTOR FURNISHED MATERIALS AND EQUIPMENT**

The *Contractor* shall be responsible for furnishing all materials in accordance with engineered Contract Drawings and Specifications, except those items specifically identified as supplied by *Buckeye*. Contractor – furnished items and materials may include, but are not limited to:

1. All tools, equipment, consumables, and miscellaneous materials required for the installation of the pipe.
2. If necessary, office trailers for conducting the field construction to be located by the *Contractor*. A separate office trailer shall be provided for Buckeye personnel and located at same location as the contractor’s trailer. The *Contractor* shall provide adequate facilities such as a desks, speaker phone (direct dial), fax/copier, internet connection, drinking water, air conditioning/heating and restroom in the office trailer for Buckeye’s Site Representatives.
3. All materials required to restore property back to its original condition.
4. Air monitoring equipment that is able to monitor for LEL, VOCs and Benzene in excavated areas.
5. Buckeye approved pipeline plugs for off-hour closing of the pipeline while under construction.
6. The *Contractor* shall provide mill certifications for any *Contractor*-supplied piping materials to the following address:

***Attention*: Brian Hraban**

**Mountain Industrial Design**

**1218 Grubstake Circle**

**Billings, MT 59105**

1. All matting, trench boxes and shoring required for excavation.
2. Holiday test equipment.
3. Potable test water and test pumps as required for the pressure test of the pipeline.
4. All piping, valves, meters, fittings tubing, studs, nuts, temporary flanges, pipe caps, gauges, and certified test equipment for pressure testing in accordance with Contractor’s Specification – Part 3.15, “Hydrostatic Pressure Testing Specifications”. All equipment will be inspected by Buckeye Site Representative prior to filling the pipeline.
5. Foam displacement pigs (5 lb. density) to displace the hydrostatic test water from the pipeline.
6. If necessary, lead wire, posts, conduit, fasteners, wire, CadweldTM kits, splice kits and mounting hardware for test stations.
7. If necessary, test stations shall be installed at locations to be determined. Test stations shall be Gerome Testox 800 Series supported with 1 ¼ inch rigid galvanized conduit.
8. Equipment and materials for surface cleaning and painting of aboveground pipeline risers, valving, casing vents, guard posts, aerial marker posts and other marker posts.
9. The *Contractor* shall supply Buckeye approved coating kits. Application must comply with manufacturer’s requirements. Manufacturer application procedures must be supplied for reference for proper installation. *Contractor* must demonstrate a working knowledge and experience to apply them.

**5.0** **BUCKEYE FURNISHED MATERIALS AND EQUIPMENT**

It shall be the *Contractor's* responsibility to protect all items from damage, theft, loss, weather, and dirt. The Contractor shall handle all materials in accordance to Contractor’s Specifications - Part 3.5, “Handling, Storing, Hauling, and Stringing”. Care shall be taken to safeguard all items. Unless specific exceptions regarding quantities and physical condition are recorded on the receiving reports, the *Contractor* shall replace, repair, or clean any items which are missing, damaged, or in unsatisfactory condition after acceptance of delivery without further compensation by *Buckeye*. The *Contractor* shall accept in writing all items supplied by *Buckeye*.

**MINIMUM MATERIALS ORDERED**

5.1 Pipe Materials

480 feet (+/-405 LF needed) of 8" NPS x 0.322” w.t., API 5L-PSL2, X52, ERW, with FBE. The pipe will be coated with a base layer of **14-16 mils** of fusion bonded epoxy with a 3” cutback on each end. This pipe will be used for conventional trenching installation.

240 feet (+/-160 LF needed) of 8" NPS x 0.322” w.t., API 5L-PSL2, X52, ERW, with ARO over FBE. The pipe will be coated with **14-16 mils** of fusion bonded epoxy cover by **40 – 60 mils** ARO, with a 3” cutback on each end. This pipe will be used for bore installation.

5.2 Pipeline Bends and Fittings

Refer to the engineered Contract Drawings for pipeline bends and fittings supplied by *Buckeye*.

Four (4) 8” NPS, STD (0.322” WT), 45 ELL, 3R, Match Std. w.t., WPHY-52, Segmentable

Four (6) 8” NPS, STD (0.322” WT), 90 ELL, 3R, Match Std. w.t., WPHY-52, Segmentable

Six 8” NPS, STD (0.322” WT), END CAP, Match Std. w.t., WPHY-52

**Notes:**

1. *Buckeye* will furnish fitting quantities as listed above. This represents the appropriate fittings needed to install the pipeline as designed. If additional fittings are required due to the *Contractor's* discretion of construction techniques, he shall first request approval from the *Buckeye Site Representative* and then, upon acceptance, be responsible for all costs associated with the modifications. In the event of changed conditions from those described in the Contract Documents, *Buckeye* will be responsible for the cost of additional fittings.
2. The *Contractor* shall be responsible for properly cutting the *Buckeye* supplied elbows to form the proper degree elbows as required on the engineered Contract Drawings.
3. The *Contractor* is required to ID bevel the fittings to match the wall thickness of the pipe.
4. The *Contractor* is required to field coat all fittings in accordance to **Section 13.0, “Pipe Coating, Joint Wrapping and Coating Repair”.**

5.3 Miscellaneous

1. Standard pipeline signs/stickers and posts
2. Pipeline warning mesh (24 inches wide)
3. Vacuum trucks and transport vehicles to dispose of the hydrostatic test water.
4. Nitrogen to purge the pipeline system in preparation for tie-ins

5.4 Excess Material

The *Contractor* shall return all excess material and pipe at the close-out of construction to the *Buckeye’s* Novi Terminal. All damaged material shall be repaired or replaced by the *Contractor* to the satisfaction of the *Buckeye Site Representative*.

5.5 Material Receiving

The *Buckeye* line pipe, supplied fittings, and miscellaneous materials will be available for pickup at the facilities listed in **Section** **1.0, “Scope of Work”**. The *Contractor* shall be responsible for picking up all materials, transportation, and distribution to work areas.

**6.0** **SCHEDULE REQUIREMENTS**

The following schedule shall apply to construction requirements[[1]](#footnote-1). Dates pertaining specifically to the bidding process are provided in the Instructions to Bidders.

Route staking Prior to 7/15

Onsite bid meeting TBD

Bids due in writing TBD

Verbal contract award (tentative) TBD

Pre-construction meeting TBD

Mobilization TBD

Construction start TBD

Welder Qualification TBD

Construction complete TBD

\*Final cleanup and move off site Construction Complete +1 week

**Note**: The *Contractor* shall base the bid on working a six (6) day, ten (10) hour per day work schedule. The Contractor shall include a separate cost for demobilization / remobilization. This cost will include demobilization from the site, and remobilization to the site in the event the pipeline downtime cannot be scheduled immediately after construction completion.

**The *Contractor* shall submit a proposed project schedule with their bid.**

**7.0** **CONSTRUCTION SURVEY**

Survey of the pipeline route and other appurtenances will be provided by ***Others*** and marked by stakes. The *Contractor* shall be responsible for proceeding in conformity and agreement with such stakes and marks. The *Contractor* shall notify *Buckeye* in writing of any conflict between the construction drawings and the construction staking. If *Buckeye* is notified of a conflict, the *Contractor* shall be responsible for correcting the construction to conform to either the construction drawings or the construction staking at the discretion of the *Buckeye Site Representative*.

The *Contractor* shall be responsible for the preservation of all stakes and marks until the pipeline is installed. If any stakes or marks are destroyed or disturbed during construction, the cost of replacing the stakes shall be borne by the *Contractor*. The *Contractor* shall notify the *Buckeye Site Representative* of any re-staking. The *Contractor* shall coordinate the staking with *Buckeye* to ensure minimum re-staking.

If the crossing is completed by HDD, the *Contractor* shall notify and allow the survey team to tie in the directional drill in accordance with **Section 17.1, “Trenchless Excavations: Directional Drills”**.

**8.0** **RIGHT-OF-WAY**

General Provisions

1. The local municipalities and the property owners have granted Right of Way (ROW) and Temporary Work Space (TWS) to *Buckeye* with the complete understanding that the *Contractor* shall exercise every precaution to avoid inconvenience to the property owner and shall restore all damaged property to the landowner's satisfaction.
2. The *Contractor* shall confine his activities within the limits of the permanent and temporary construction easements and shall respect the right of the property owner.
3. The *Contractor* shall follow all private property, permit and code requirements, including, but not limited to, those that are listed in the Property Line List and shall observe the all restrictions (e.g., land use restrictions, hours of operation, etc.).
4. The *Contractor* shall be responsible for the protection and preservation of all landscaping and adjacent resources and shall restore such property to the state and condition that existed before construction started.
5. The *Contractor* shall ensure unobstructed ingress and egress to all property affected by the construction site during those hours designated by the property owner and the *Buckeye Site Representative*.
6. The *Contractor* shall be responsible for all backfill materials per the requirements of these Specifications and the engineered Contract Drawings. Upon completion of the backfill, the *Contractor* shall clear the ROW of all rocks, stumps, extraneous vegetation, excess excavated material, or other remaining debris. The *Contractor* shall fill all holes, ruts and depressions, and shall leave the ROW in a neat condition acceptable to the *Buckeye Site Representative*. This requirement includes the restoration of topsoil to its original depth and quality unless otherwise specified in the Contract Drawings. Grading shall be performed in such a manner as to minimize interference with the existing natural drainage. Any unused excavated material shall be disposed of by the *Contractor* at his expense.
7. The cost of mitigation measures, penalties, or fines required along the pipeline route, as a result of unauthorized *Contractor* deviation from the specified restrictions and requirements will be borne by the *Contractor*.

**9.0** **WORK SPACE RESTRICTIONS**

The *Contractor* shall limit the workspace along the ROW to a maximum width as specified on the engineered Contract Drawings to avoid excessive disturbance of the existing soils. The *Contractor* shall minimize the disturbed soils in these areas also; however, adequate area shall be utilized to assure safe construction practices. The *Contractor* will be required to remain in strict compliance with all restrictions during the course of the installation of the pipeline.

**For all disturbed areas, the *Contractor* will be required to restore as shown on the engineered Contract Drawings.**

**10.0 CLEARING**

* 1. 1. All disposal techniques for cleared materials will follow landowner and local municipality requirements. Burning is not permitted without property owner, *Buckeye,* and local authority permission.
	2. This section describes work which may be necessary for the clearing of all brush, hedges, or other obstacles (with the exceptions noted below) lying within the confines of the ROW and TWS. The Contractor shall perform clearing in accordance to the Contractor’s Specification - Part 6.3, “Clearing and Grading Right-of-Way”.
	3. *Contractor* shall examine the area of the proposed pipeline, with the *Buckeye Site Representative*, to ensure a complete understanding of any special provisions and to identify any trees or other environmental features which must be maintained. Where deemed necessary by *Buckeye*, *Contractor* shall erect and maintain suitable protection for these areas.
	4. Only that amount of ROW necessary for the actual pipeline installation shall be cleared, but not exceeding the width specified and allowed in the easement and working space agreement. The *Contractor* shall perform the clearing operations so as to minimize, to the greatest degree, the damages associated with pipeline installation.
	5. Where timber is encountered, *Contractor* shall clear the ROW by removal of all brush, stumps, and other encumbrances. The *Contractor* shall remove all brush, stumps, and other loose debris so that the spoil bank from the ditching operations shall not fall on any foreign material that might become mixed with the excavated soil. All brush and other materials shall be removed and disposed of by the *Contractor* from the ROW, to the complete satisfaction of *Buckeye*, the landowner and/or tenant. The *Contractor* shall comply with other requirements of ROW agreements or regulatory bodies having jurisdiction over lands and forests.
	6. No cutting or clearing shall occur off the ROW without written approval from *Buckeye*.
	7. The Contractor shall furnish and maintain all necessary day and night warning signs, flares, lanterns, barricades and flag men when working on or near roads, highways, railroads or other traffic ways to protect all persons and property from injury and to warn the drivers of vehicles of the obstructions.

**11.0** **SAFETY AND CONSTRUCTION PROCEDURES**

1. Safety and construction procedures shall be followed as detailed in the Contractor’s Specifications - Part 4, “Safety/OSHA Requirements”.
2. Contractors must be qualified through NCCER - National Center for Construction Education and Research ([www.nccer.org](http://www.nccer.org)) to the following *Buckeye* Operator Qualifications:
	1. 706 Visual Pipe Inspection
	2. 708 Pipeline ROW Patrol/Maintenance/Line Marker Installation
	3. 716 Coating Application
	4. 723 Weld and Fabricate Line Pipe
	5. 726 Excavation, Supporting, and Backfilling
	6. 727 Hydrostatic Testing
	7. 1010 Install Test Leads
3. When working within any facility, the *Contractor* shall follow all safety requirements and training as directed by the *Local Facility Representative*.
4. The *Contractor* shall be responsible for a foreign line locating "sweep" (using a pipe and cable locator) for the entire length of pipeline installation prior to any excavation and shall verify all foreign lines and obstructions on the engineered Contract Drawings. Any foreign lines and obstructions found that are not on the engineered Contract Drawings will be identified and documented by the *Contractor*.
5. The *Contractor* is advised that the pipeline will be installed in areas where there are operating pipelines parallel to and/or crossing the pipeline being installed. The *Contractor* must use adequate safety precautions when working around live lines.
6. The *Contractor* shall pothole for all known utilities in advance of construction. Hand excavation is required near all utilities. If any underground utility is not found by potholing, all work shall stop at this location and the *Buckeye Site Representative* shall be notified. The *Contractor* shall use extreme care not to damage any existing utilities. If the *Contractor* has any questions or problems concerning safety, he shall immediately contact the *Buckeye Site Representative*.
7. The *Contractor* shall probe or pothole to locate all existing utilities which run parallel, in close proximity to, or cross the *Buckeye* pipelines.
8. The *Contractor* shall not perform excavation work of any kind without the *Buckeye Site Representative* being present. The *Contractor* shall not perform any backfill operations without the prior approval of the *Buckeye Site Representative*. Nonconformance will be grounds to remove the *Contractor* from the job site.
9. All damage to existing pipelines, equipment, or utilities shall be repaired by the *Contractor* at his expense. Any claims for consequential damages resulting from damage to any existing pipeline or utility caused by the *Contractor* shall be borne by the *Contractor*.
10. The *Contractor* is required to contact the local one call systems at least 72 hours in advance of any excavation. The one call system will record the pertinent information and issue the *Contractor* a call number. The call number issued to the *Contractor* by the one call system shall be turned over to the *Buckeye Site Representative*. The use of the one call system will not relieve the *Contractor* for the responsibility of locating all foreign lines.
11. The *Contractor* shall furnish and maintain all necessary day and night warning signs, flares, lanterns, barricades, and flag-men when working near roads, highways, railroads, or other traffic ways to protect all persons and property from injury and to warn drivers of vehicles of obstructions.
12. Buckeye’s Inspector has the right to inspect and reject construction equipment for safety.

**12.0** **WELDING OF STEEL PIPE**

Weld Procedure, Procedure Qualification, and Welder Qualification

1. Welding procedures shall be in conformance DOT, “Hazardous Materials Regulations, Title 49 CFR, Part 195, Transportation of Hazardous Liquids by Pipeline”, API 1104 - Welding of Pipelines and Related Facilities, ASME B31.4, Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia, and Alcohols, and ASME BPV-VIII-1, Rules for Construction of Pressure Vessels.

2. All welding on the carrier pipe shall be made using the **manual shielded metal arc process**.

3. The *Contractor* shall comply with the following Buckeye welding procedure(s):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Procedure** | **Joint****Design** | **Base****Material** | **Diameter** | **Wall****Thickness** | **Filler****Metal** |
| P-1A | Butt | B/X-42 | 2-3/8” to 30” | 3/16” to 3/4" | 6010 Root7010 G Hot7010 G |
| P-2A | Butt | X-46/X-60 | 2-3/8” to 30” | 3/16” to 3/4" | 6010 Root8010 G Hot8010 G |
| P-10 | 2” Branch | B/X-65 | 2-3/8” to 30” | 3/16” to 3/4" | 7018 |

4. All welders must be qualified to Buckeye’s welding procedures within the last six (6) months per the requirements of the Contractor’s Specification - Part 3.8, “Welder Qualification”. Before construction, the *Contractor* shall submit each welder’s qualifications to the *Buckeye Site Representative*.

5. To qualify a welder to *Buckeye’s* welding procedures, the *Contractor* shall contact *Buckeye’s Project Engineer* to arrange for qualification testing. The *Contractor* shall provide the welders (labor and travel hours), welding rigs, and associated consumable materials required for the qualification test which must be completed one (1) week prior to construction. *Buckeye* will supply radiography required for welder qualification.

6. All welding shall be done in accordance with the requirements set forth in the Contractor’s Specification - Part 3.8, “Welder Qualification”.

7. Welded joints required for the fabrication and installation of all piping work as required by this Contract will be 100% radiographed by *Buckeye’s Subcontractor* in accordance with API 1104. Level II or III radiographers will be provided by *Buckeye* to interpret the radiographic images of the production welds.

8. The *Contractor* shall maintain a weld map as a part of the as-built red-line drawings. In addition, the *Contractor* shall provide the weld information necessary to support the Daily Radiographic Report prepared by others. This information includes the number identification of the welder(s), pipe size, grade, and wall thickness, and engineering station or stake number of each weld location.

9. The cost of radiography rework and additional welding due to rejected welds shall be solely the responsibility of the *Contractor* and shall not be included in the bid to *Buckeye*.

**13.0** **PIPE COATING, JOINT WRAPPING AND COATING REPAIR**

1. The *Contractor* shall coat underground pipe, fittings, and valves according to Contractors Specification – Part 3.11 “Coating of Underground Portions of Piping”. Note that the *Buckeye* approved coating systems in the Contractors Specification may have changed and current systems are listed below.
2. Field-applied coating systems currently approved by *Buckeye* for FBE pipe are:

Powercrete R-95 \*preferred coating for directional drill applications)

Powercrete F-1 (Low Temperature Cure)

Denso Protal 7200 Epoxy

Denso Protal 7125 Epoxy (Low Temperature Cure)

Specialty Polymer Coatings SP-2888 RG Epoxy

Scotchkote Patch Stick compound, for minor repairs only

For two part epoxy to coal tar/asphalt transitions

* + 1. Denso Densyl
		2. LT Petrolatum Tapes (may be combined with fiberglass outer wrap)
1. When hauling, pipe must be carried on satisfactorily padded bolsters. Proper padding, approved by the *Buckeye* *Site Representative*, must be used between the chain and the coated pipe to protect the coating. Leather or canvas belt slings are required for loading pipe on the job site, stringing along the ROW, and all pipe handling for laying, welding and/or lowering. Pipe clamps or chains for handling pipe lengths will not be permitted. Damaged coating shall be repaired by the *Contractor* at his expense. This includes all defects disclosed by the holiday detector.
2. Any bare pipe or fittings must be thoroughly cleaned to remove all rust, mill scale, lacquer, oil, dirt, and moisture from the area to be coated. The surface must be clean and totally dry before priming and coating. The Contractor shall power wire brush to a minimum of SSPC-SP3 or sandblast the surface to a minimum of SSPC-SP6.

**14.0** **HOLIDAY TEST**

1. All newly installed piping for underground service including coating repairs, field coating of all welds and fittings shall be holiday tested in accordance with Contractor’s Specification - Part 3.11, “Coating of Underground Portions of Piping” and the manufacturer's standards.
2. The holiday test report form shall be completed by the *Contractor* and submitted to the *Buckeye Site Representative* at the end of each day.
3. The *Contractor* shall test the entire pipeline for holidays using Stearns' Electronic (or equal) holiday detector set at 1,800 to 2,000 volts for FBE coating, and eight thousand (8,000) volts for extruded coating (Powercrete).
4. All piping is to be tested after coating is applied and just ahead of the lowering operation.
5. All holidays shall be plainly marked immediately after detection and shall be taped to the satisfaction of the *Buckeye* *Site Representative*.
6. The *Buckeye* *Site Representative* reserves the right to have the *Contractor* re-pass the holiday detector over any section of the pipeline when, in the opinion of *Buckeye*, it is necessary. **Any rework will be done at no additional cost to *Buckeye*.**

**15.0 EXCAVATION**

1. The Contractor shall perform all excavation in accordance to the Contractor’s Specification - Part 3.6, “Excavation and Backfill”.
2. Only backhoes and track hoes with a steel plate welded across the teeth of the bucket are permitted to be used during excavation work within two feet of a Buckeye pipeline. This will lessen the potential to puncture the pipeline or create harmful gouges.
3. No powered excavation equipment may be used within 24” of the pipeline until exact line
4. Depth and size are verified by probe bar inspection and placement.
5. Soil within 12” of the pipeline shall be removed by hand tools. Powered excavating equipment may be used between 4” and 12” of the facility’s known outside perimeter if Smart Pig data has been reviewed and confirms that no appurtenances are present at the excavation site.
6. Any damage to the pipe coating or pipeline shall be reported immediately to Buckeye,
7. Inspected by a Buckeye representative, and repaired prior to backfilling.
8. Each underground facility (pipeline, valves, sleeves, and other appurtenances) shall be supported to prevent horizontal and vertical movement. Approved temporary supports include wooden skids and sheeting. Approved permanent supports include sandbags or "Sakrete" bags.
9. Valves, repair sleeves, and other appurtenances shall be supported immediately after being exposed. Place the supports directly under the appurtenance and within 5 feet of each side.
10. Support spacing for exposed line pipe shall not exceed these distances:

|  |  |  |
| --- | --- | --- |
| Pipe Size | Preferred Span (ft.) | Maximum Span (ft.) |
| 4” | 20 | 40 |
| 6”-8” | 25 | 40 |
| 10” | 30 | 40 |
| 12”-18” | 35 | 40 |
| 20”-24” | 35 | 45 |

1. Span distances apply to all pipe wall thicknesses. Supports shall not be located within five feet of a weld. Pipes supported at maximum span cannot have valves, sleeves, tees, or other appurtenances in the adjacent upstream and downstream spans.
2. A minimum of 6" of padding material (sandbags, air cushions, "Sakrete" bags, or other material as approved by the Company) shall be maintained between the pipeline and wooden skids.
3. Trench supports and pipe supports shall remain in place along the entire length of the pipeline section until the scheduled maintenance activity is completed.

**16.0** **BENDING AND LAYING**

This section not applicable to the subject project. All P.I.s shall be accomplished through the fabrication of Buckeye supplied fittings.

**17.0** **TRENCHLESS EXCAVATIONS**

The *Contractor* shall provide information to *Buckeye* proving that the *Contractor* or boring *Subcontractor* has the appropriate equipment and experience to adequately perform the drills/bore work. The prime *Contractor* is solely responsible for the successful completion of all drills/bores and shall perform all drills/bores to meet industry and permit requirements. The *Contractor* must submit with their bid proposal, the name of the drill/boring *Subcontractors* with their qualifications and safety record.

**17.1 Directional Drill (SEE 1.0 Scope of Work, 2.1 Bid Option No. 1)**

Insurance Requirements - Please Review Carefully

*Buckeye* requires that each proposal identify the *Directional Drill Subcontractor* and provide details of insurance coverage of the *Directional Drill Subcontractor* as described below. Failure to provide this information with the bid proposal may result in *Buckeye* rejecting the bid with no further evaluation.

1. The bidder must provide the level of coverage for "Lost-In-Hole" insurance that is maintained by the *Directional Drill Subcontractor*. *Buckeye* will evaluate the level of coverage to determine if an additional amount is deemed necessary based on the potential loss that may be incurred. *Buckeye* will negotiate the final level of coverage with the lowest bidder.
2. The amount of general and excess liability insurance carried by *Directional Drill Subcontractor* must be specified in the bid proposal. It will be required that both the prime *Contractor* and the *Directional Drill Subcontractor* name *Buckeye* as additionally insured and provide evidence of such as a stipulation of the contract award.
3. The successful bidder will not be allowed to change the *Directional Drill Subcontractor* after contract award without negotiation and written agreement between *Buckeye* and the successful bidder.

General Requirements

The *Contractor* shall be supplied with drawings showing the location of the proposed directional drill. Stationing for the drill entry and drill exit is provided on the engineered Contract Drawings. The *Contractor* shall provide detailed profile design, detailed procedure for construction, and accurate as-built profile for each directional drill.

The *Contractor* shall also provide size and anchoring details for any drilling rigs that may be used during construction.

**Note**: *Buckeye* approval of the directional drill procedures and proposed profiles is required prior to installation. Please carefully refer to Contractor’s Specification - Part 3A, “Trenchless Excavation Construction”, for specific requirements for directional drills.

The work to be performed will be as follows:

* The construction of the 8-inch pipeline along Haggerty Road as shown on engineered Contract Drawing Nos. WW203WFCA0003 and -0004. The north directional drill is approximately 1,921 feet long and the south directional drill is approximately 2,245 feet long.

The *Contractor* shall furnish all labor, equipment, materials (except those specified below to be furnished by *Buckeye*), and supplies and shall perform all work necessary to provide *Buckeye* with a complete, finished crossing.

*Contractor* shall perform the directional drill in accordance with approved drilling methods. A drilling method and a written procedure shall be submitted by the *Contractor* with his bid. Prior to installation, the *Contractor* shall submit a proposed drilling layout drawing for the drill for approval by *Buckeye*.

WORK AND MATERIALS INCLUDED:

1. *Contractor* shall install the horizontal directional drill within the parameters set out below and as described in the General Conditions, Specifications and engineered Contract Drawings.
2. *Contractor* shall clear the ROW and TWS as shown on the engineered Contract drawings.
3. *Contractor* shall haul, string, weld, coat field joints (using only approved methods stipulated in this Construction Specification) and hydrostatically test the piping to be used for the directional drill. [Note: This is a separate pressure test that is required before the pipes are pulled into place. The duration of the test will be 4 hours.] The *Contractor* shall provide adequate security and shall be responsible for the integrity of the pipe section until after the pullback and final test of the pipeline.
4. *Contractor* shall be required to build up and/or stabilize the existing areas and supply sufficient matting to support the drilling equipment. Any areas over existing pipelines must be matted before the equipment is allowed to travel over these areas.
5. *Contractor* shall mobilize the drilling equipment, erect the rig, drill a pilot hole, enlarge the hole as necessary and pull back the prefabricated pipe string for the directional drill. [Note: The directional drill procedure must stipulate that drill pipe is in the hole throughout the entire operation after the pilot hole has been drilled until the pipeline is pulled through the reamed hole.]
6. *Contractor* shall supply a wire grid system with computer tracking for controlling the grade and direction of the pilot hole.
7. *Contractor* shall submit the pilot hole profile to Buckeye and await approval prior to pullback of the new pipe section.
8. *Contractor* shall provide adequate support rollers for the pipeline during pullback of the pipe string into the pre-drilled hole. The rollers and cradles shall be of a type that will prevent damage to the pipe and coating and will be of sufficient number to prevent over stressing due to sag bends during the pullback procedure.
9. *Contractor* shall run a sizing plate prior to and after completing pull back. The sizing plate shall be 0.250” smaller than the internal diameter of the pipe. Any dent greater than 2% and any ovality greater than 6% will be in the minimum criteria for not accepting the drill. If the sizing plate has excessive deformation *Buckeye* reserves the right to perform additional inspections to verify the integrity of the pipe line before accepting or rejecting the drill.
10. *Contractor* shall hydrostatically test the pipe crossing from 1,850 psig to 1,950 psig for four hours prior to pullback to insure its integrity.
11. *Contractor* shall supply portable mud tanks or construct temporary mud pits to contain excess drill fluids during construction. Contractor is responsible for the loading and hauling of drilling mud.
12. Upon completion of the crossings, drill cuttings and fluids are to be spread over the temporary workspaces and allowed to dry. *Contractor* shall then load the spoils into Buckeye supplied transports for disposal.
13. *Contractor* shall provide accurate as-built profiles of each completed crossing.

WORK NOT INCLUDED:

1. *Buckeye* will supply all piping as listed in **Section 5.0 “Buckeye-Furnished Materials and Equipment”** of this Construction Specification. All other materials shall be supplied by the *Contractor*.
2. All work easements, rights-of-way, road crossing permits, water crossing permits, franchise agreements and physical design approvals from the property owners and local municipalities will be provided by *Buckeye*.
3. *Buckeye* will provide construction survey staking to locate and mark all known utilities in the vicinity of the work to be performed. *Contractor* will repair, at his own cost, damage to any marked utilities caused by his activities.
4. Construction survey staking of proposed entry point, proposed exit point, pipeline alignment and boundaries of TWS will be provided by *Buckeye*. All other survey work necessary for the performance of the work, including directional drilling control points, will be provided by the *Contractor*.
5. X-ray services for 100% inspection of welds prior to installation of the directional drill.
6. As-built survey will be provided by others. Contractor will provide access to Buckeye’s surveyor as necessary to obtain necessary As-built data.

GENERAL INFORMATION:

1. The *Contractor* must utilize a swivel to minimize the rotation of the product pipelines during pullback so they may attain the most stress free alignment in the drill hole.
2. *Buckeye and Buckeye on-site representative* shall have access, at all times, to any measuring or gauging devices used for the horizontal drill as well as any drilling logs maintained by the *Contractor*.
3. Prior to beginning construction, *Contractor* shall be required to submit a detailed Drilling Procedure for installation of the crossings, a drill site layout drawing and a bar chart detailing the proposed Work Schedule.
4. In the event that the *Contractor* must abandon the drill hole before completion of a crossing, the *Contractor* shall seal the bore hole and re-drill the crossing at no extra cost to *Buckeye*.
5. The *Contractor* shall provide adequate security and shall be responsible for the integrity of the bore pipe sections until the work has been completed. Once the pull has begun, it shall continue to full completion. The *Contractor* shall provide adequate support of the pipelines, as approved by *Buckeye*, during the pull back to prevent damage to the pipe and coating.
6. In the event that the pipeline becomes lodged and cannot be pulled out of the drilled hole during installation, *Contractor* shall seal the pipe and existing hole. *Contractor* shall re-drill a pilot hole and again commence the pulling in of the pipeline. The cost of coated pipe, and its welding, to replace the portion of the pipe not retrieved shall be borne by the *Contractor*.
7. The *Contractor* shall check the point of bore entry and bore exit immediately prior to construction. *Contractor* shall be responsible for setting supplementary survey control points that may be required during the construction of the directionally drilled crossing.
8. After completion of the boring operation and prior to pulling the pipe, the *Contractor* shall furnish to *Buckeye* alignment and profile information on the directional drilled portion of the pipeline based on the down hole survey tool records in the form of a tabulation showing X, Y, and Z coordinates related to the point of entry and the line between the entry and exit points. Coordinates shall be furnished on intervals as measured along the pipeline. After completion of the work, *Contractor* shall furnish *Buckeye* with as-built plan and profile drawings of the bored crossing. Elevations and survey stations shall be tied into local bench marks.
9. Coating for tie in welds on pullback section shall be made using Powercrete F-1 or an alternative Buckeye approved fast cure coating.
10. Buckeye anticipates that the drills will be through soil. The contractor shall provide costs per foot for drilling through medium and high density rock. If rock is encountered during the drill these costs will be billed as an adder to the bid price for the actual amount of rock drilled through. There will be no additional change orders allowed for tripping out, changing tooling, etc. The per foot price should include these costs.

PIPELINE ALIGNMENT AND PROFILE TOLERANCES:

1. The as-built elevation tolerance for the pilot hole shall be +0 feet, -10 feet.
2. The as-built alignment tolerance for the pilot hole shall be +/- 4 feet under land and +/- 10 feet under water.
3. Ground entry and exit angles shall be as listed on the engineered Contract Drawings, plus or minus two (2) degrees.
4. Minimum combined radius of the installed pipeline shall not exceed that listed on the Engineered Contract Drawings.
5. The actual exit point of the drill for the pipeline shall be no more than 1 foot left or right of the proposed exit point.
6. At all times, the offset shall be maintained inside the Haggerty Road R.O.W.
7. The actual exit point shall be no more than 2 feet back or forward of the proposed exit point.
8. The vertical profile, as shown on the drawings, is the minimum depth to which the pipeline shall be installed. *Contractor* may, at his option and with the permission of the *Buckeye Site Representative*, elect to install the pipe at a greater depth than shown on the engineered Contract Drawings.
9. *Contractor* shall limit the longitudinal pull on the pipe to not exceed 60% of the Specified Minimum Yield Strength (SMYS) of the pipe. *Contractor* shall continuously monitor the longitudinal pulling forces during pipeline pullback.
10. Variation from the above parameters will not be permitted without authorization of the *Buckeye Site Representative*.
11. The *Contractor* shall provide information to *Buckeye Engineering* and *Construction Engineering* proving that the *Contractor* or boring *Subcontractor* has the appropriate equipment and experience to adequately perform the bore work. The prime *Contractor* is solely responsible for the successful completion of all bores and shall perform all bores to meet industry and permit requirements.

**17.2 Dry Jack and Bore**

The *Contractor* shall be supplied with conceptual design drawings of the proposed jack and bore crossings for each project. These drawings will show approximate beginning, ending, and total depth requirements. The *Contractor* shall provide a detailed profile design and a detailed procedure for construction and an accurate as-built profile for each jack and bore crossing.

**Note**: *Buckeye* approval of the jack and bore procedures and proposed profiles is required prior to installation.

All existing lines shall be located by potholing prior to boring. All potholes at the existing lines shall be kept open during the boring operation to ensure that the drill bit or boring head does not damage any existing lines or structures.

The work to be performed will be as follows:

* The construction of the 8-inch pipeline across ODOT’s I-75 as shown on engineered Contract Drawing No. 6. This uncased jack & bore is approximately 160 feet long.

**Note**: Dry jack & bore installed without casing shall be cleaned by the *Contractor* to pre-installation condition as approved by the *Buckeye Site Representative*.

**Note**: Since this is a proposed uncased crossing, if the contractor proposes to complete the crossing by jack and bore, with a bore pipe diameter larger than 8-inch nominal (i.e. 12-inch or greater), the contractor shall provide a plan to fill the annular void created by the oversized bore pipe. This may include contractor applied concrete coating of the 8-inch to reduce the void to less than 1-inch.

The *Contractor* shall be prepared to discuss the installation method at the pre-construction meeting. The *Contractor* shall submit a detailed procedure of the bore method of construction for *Buckeye Design Engineering* review within one week following award of the project. The detailed procedure shall contain sufficient information establishing his proposed strategy for the following:

1. Provide a positive indication of where the leading edge of the casing is located with respect to grade. This indication shall be provided with a water tube (Dutch Level) purchased from *American Augers* - Wooster, Ohio (800) 321-4900, electrical transmitting and receiving devices, or other approved methods. The *Contractor* shall indicate the intervals for checking grade and a record shall be maintained at the job site.
2. Provide all necessary boring equipment of adequate size and capability to install the casing as required by this project.
3. Provide a means for controlling grade and horizontal deflection.
4. Provide a means for controlling over cut to a minimum, the maximum being limited to a one inch space around the circumference of the casing.
5. Provide a positive means for centering the cutting head inside the bore hole. This can be accomplished with a movable steering head or bars welded to the leading end of the casing (steerable head available from *American Augers*).
6. Provide a positive means for preventing the rear of the cutting head from advancing in front of the casing by more than a maximum of 1/3 times the casing diameter in stable cohesive soil conditions with a maximum of eight inches. In unstable conditions, such as granular, loose materials, the cutting head shall be retracted into the casing a distance that permits a balance between pushing pressure and the ratio of pipe advancement to the quality of soil to ensure that no voiding is taking place. The face of the cutting head shall be placed to provide reasonable obstruction to the free flow of soft or porous materials.
7. Providing adequate casing lubricant with a bentonite slurry or other approved technique.
8. Provide an adequate band around the leading end of the casing to provide extra strength. In loose, unstable materials, where the cutting head is retracted into the casing, the band will also serve to reduce skin friction as well as provide a means for slurry lubrication to coat the outside skin of the casing.
9. Provide at least twenty feet of full diameter auger at the leading end of the casing. The auger size may be reduced, but the reduced auger diameter must be at least 75% of the full auger diameter. For example, if a twelve inch casing is being installed, at least twenty feet of twelve inch diameter auger should be used at the leading end of the casing. After the first twenty feet, a smaller diameter auger can be used, but it should never be less than the twelve inch auger diameter multiplied by 0.75.
10. Providing water to be injected inside the casing to facilitate spoil removal. The point of injection shall not be within two feet of the leading end of the casing (when permitted via permit).
11. Providing an acceptable boring pit meeting all OSHA requirements and approved by the *Buckeye Site Representative*. All of the above options are required unless the *Engineer* has agreed in writing that they are not necessary. The intent is to provide to the maximum extent possible every means for preventing problems that may delay the project and/or endanger the safety of the public.

All bored crossings are the responsibility of the *Contractor*. The *Contractor* must submit information for items (a) - (k) to the *Buckeye Project Manager*.

**17.3 Slick Bores (SEE 1.0 Scope of Work, 2.1 Bid Option No. 1)**

The *Contractor* shall be supplied with conceptual design drawings of the proposed slick bored crossings. These drawings will show approximate beginning, ending, and total depth requirements. The *Contractor* shall provide a detailed profile design and a detailed procedure for construction and an accurate as-built profile for each slick bored crossing.

**Note**: *Buckeye* approval of the slick bore procedures and proposed profiles is required prior to installation.

All existing lines shall be located by potholing prior to boring. All potholes at the existing lines shall be kept open during the boring operation to ensure that the drill bit or boring head does not damage any existing line or structure.

The work to be performed will be as follows:

* The construction of an 8" that will cross ODOT’s I-75 by means of the slick bore method as indicated on the engineered Contract Drawings.

Prior to proceeding with this bore method, the *Contractor* must submit to the *Buckeye Site Representative* sufficient information establishing his proposed strategy for the following:

1. Providing all necessary equipment of adequate size and capability to install the proposed crossings.
2. Providing a means for controlling grade and direction of the bore.
3. Providing an experienced boring equipment *Operator*.
4. Providing an OSHA acceptable boring pit and shoring as required and as approved by the *Buckeye Site Representative*.

The use of the slick bored method is not normally acceptable for railroad crossings and may not be acceptable for roads or other crossings unless specifically stated in easement documents or shown on the engineered Contract Drawings. Permission for a slick bore must be obtained, in writing, from the *Buckeye Project Manager* if it is not specifically called out on the engineered Contract Drawings.

**17.4 Additional Bores**

The *Contractor* has the option to propose bores/drills in area where they feel that this method is more cost effective, for any proposed bore/drill, not specifically represented on the engineered Contract Drawings, written approval must be obtained from *Buckeye*.

**Any additional drills or bores proposed by the *Contractor*, that is not specifically shown on the engineered Contract Drawings, can be included in the *Contractor’s* bid proposal.**

**18.0** **LOWERING IN**

The Contractor shall lower pipe into the trench (after the coating operation has been completed) in accordance to Contractor’s Specification - Part 3.9, “Laying/Lowering-In”.

All brush, skids, pipe, metal of any kind, rocks, large clods, sticks, projecting rocks, and other hard objects shall be removed from the trench into which the pipeline is to be lowered so that the protective coating shall not be punctured or abraded. Whenever the bottom of the trench contains projecting rocks which might damage the pipe or coating, the bottom of the trench shall be padded with a minimum of 6 inches on the bottom of the trench and 12 inches of padding on both sides and above the pipeline to be furnished and installed by *Contractor*. *Buckeye* must approve backfill material and the installation process required. Wide non-abrasive slings, belts, or rubber tire cradles shall be used for lowering of the pipeline. The *Contractor* shall lower the line in such a manner as to provide sufficient slack and to the satisfaction of the *Buckeye* *Site Representative*. The pipeline shall not be dropped or subjected to jar or impact. All coated and wrapped pipe, which has been supported in any manner, shall be subjected to close inspection and checked with a holiday detector to verify that the coating is undamaged and, if found damaged, shall be patched. The *Contractor* shall furnish sufficient, proper equipment during the lowering-in operation to prevent bending of the pipe or damage to coating.

**19.0** **BACKFILL**

1. The *Contractor* shall backfill the pipeline trench only after the as-built information has been recorded by ***Others***.
2. The trench shall be backfilled with suitable material as specified on the engineered Contract Drawings and Contractor’s Specification - Part 6.14, “Backfill”. A sand envelope shall be installed around all open-trenched pipeline.
3. Pipeline warning mesh shall be installed above each pipeline, except at bore locations, per the engineered Contract Drawings.
4. All backfill shall be compacted in accordance with **Section** **20.0 “Compaction”** of these Specifications.
5. All ditches and swales shall be reshaped to ensure proper water flow and property drainage.

Note: Flowable Fill maybe required on the west side of I-75 in the area of the proposed parking lot associated with the manufacturing facility expansion.

**20.0** **COMPACTION**

The *Contractor* shall use acceptable construction practices when performing all compaction in compliance with Contractor’s Specifications - Part 6.14, “Backfill” and the engineered Contract Drawings. The *Contractor* shall adhere to all applicable local, municipal, federal government, or applicable authority requirements. If not specified on the engineered Contract Drawings, the following minimum levels of compaction shall apply:

a) For open cut in paved areas and at road crossings - 95%.

b) For parallel encroachment within 10 feet of a paved or stabilized roadway - 90%.

c) For parallel encroachment outside of 10 feet of a paved or stabilized roadway, or general landscaping - 80%.

**Note**: If *Buckeye* so directs, the *Contractor* shall provide compaction testing *(*ModifiedProctor Density Testing) to insure that the correct compaction level has been achieved.

**21.0** **PIPELINE PRESSURE TEST**

The *Contractor* shall hydrostatically pressure test the pipeline(s) installed under this Contract in accordance with Design Contractor’s Specification - Part 3.15, “Hydrostatic Pressure Testing Specifications”. The pipeline pressure tests shall be conducted to a minimum pressure of 1,850 psig and a maximum pressure of 1,950 psig and held at that pressure for a period of not less than eight (8) continuous hours after twelve (12) hours of temperature stabilization of the water. For the drilled and bored sections, the pipeline pressure test (in addition and prior to) shall be conducted for four (4) continuous hours prior to pull back.

Proper clock chart recording of pressure and temperature shall be provided and maintained by the *Contractor*. The *Contractor* must supply calibration certificates for the deadweights, temperature recorder, and pressure recorder to the *Buckeye Site Representative*. All pressure test recording equipment must have certified calibration within six (6) months prior to the date of the pressure tests.

The water used for any pressure testing required for these pipelines must originate from a potable water source. This water source must be identified by the *Contractor* and approved by *Buckeye* prior to any hydrostatic testing. The water cannot contain any additives such as oil, grease, corrosion inhibitors, soap, antifreeze, or any other chemical. In addition, any pumps used to fill or pressurize the pipeline must be free of any oil or grease and will be subject to inspection by the *Buckeye Site Representative*.

During pressure testing, the *Contractor* shall travel the pipeline section being tested to ensure the line is clear of outside personnel and to inspect for leak indications. The *Contractor* shall be required to travel each section during pressure testing. The *Contractor*'s personnel shall maintain constant two-way communications during pressure test so that a test may be stopped at any time in the event of a pipeline safety problem.

The *Contractor*, while testing the mainline pipe, shall hydrotest excess line pipe (a minimum of two [2] joints and a maximum of four [4] joints) for future uses as may be needed on this pipeline. Joints are to be a maximum length of forty (40) feet. The *Contractor* shall furnish all necessary piping, correct pressure rated bell caps, valves and other appurtenances needed to test the future joints.

Original copies of the Pressure Test Forms, deadweight logs, pressure recording charts, and temperature recording charts are to be transmitted to the *Buckeye Site Representative* at the completion of a pressure test. At the completion of the pipeline pressure test, *Buckeye* will dispose of the test water using transports. The *Contractor* shall transfer the water from the pipeline to the transports for proper disposal.

**22.0 CONTAMINATED SOIL**

If the *Contractor* determines by sight that he has encountered contaminated soil, all work at that site shall stop immediately and the *Buckeye Site Representative* shall be notified. The *Buckeye Site Representative* will assess the situation and decide what remediation measures will be used. In no case shall the *Contractor* remove any contaminated soil from the site after it has been identified.

The *Contractor* will be responsible for the cleanup of any contamination, which may be caused by the *Contractor*, as a result of this construction.

**23.0** **FENCES**

Fencing removed by the contractor for access to the temporary workspaces shall be reinstalled or replaced to its pre-existing condition. This includes the ODOT right of way fence.

**24.0** **PAINTING**

This section is not applicable to the subject project.

**25.0** **TEST REPORTS AND INSPECTION**

**25.1 Reports**

1. All inspection and test reports shall be furnished in duplicate to the *Buckeye Site Representative*.

2. All reports shall include the name of the *Contractor*, specialist *Subcontractor*, personnel, and witness. The line designations for location, name of inspection or test, and date of test shall be completed.

**25.2 Inspections**

1. On a day-to-day basis, the *Contractor* shall conduct routine inspections for compliance with these Specifications.

2. Inspection by the *Buckeye Site Representative* or the *Buckeye Contract Engineer* shall not relieve the *Contractor* of any responsibility for thorough inspection and performance of all the requirements in accordance with these Specifications and applicable codes.

3. The *Contractor* shall perform or have performed by a specialist *Subcontractor*, all inspections and tests required by these Specifications and applicable codes. The *Contractor* shall obtain the concurrence of the *Buckeye Site Representative* regarding time and procedures for specific inspections and tests not less than 24 hours before commencement and shall not conduct inspections or tests during the absence of the *Buckeye Site Representative* without his prior knowledge and consent.

4. The *Contractor* shall perform all inspections in conjunction with the *Buckeye Site Representative*, to meet the requirements of the Erosion and Sedimentation Plan as delineated in the engineered Contract Drawings and Contractor’s Specification - Part 6.10, “Erosion Control”.

**26.0** **AS-BUILT INFORMATION**

The *Contractor* is responsible for collecting data that includes accurate as-built depth and alignment data, details of field changes of pipeline installation, accurate depth and location data on foreign pipelines, and accurate pipeline offset information. The *Contractor* shall use this information to prepare red-line drawings for submission to *Buckeye’s Contract Engineer*.

**The *Contractor* is solely responsible for the correct installation of the pipeline at the elevations shown on the engineered Contract Drawings. This will require the *Contractor* to provide survey-capability in order to verify the location and placement of the installed pipeline.**

The *Contractor* shall also maintain a weld map showing all welds and locations. The *Contractor* shall work with *Buckeye’s Radiographic Subcontractor* to ensure they have collected the required data to maintain the Daily Radiographic Report.

***Others*** shall survey the installed pipeline just prior to backfill.

**27.0** **OPERATIONS DEPARTMENT ACCEPTANCE LETTER**

This section is not applicable to the subject project.

**28.0** **INFORMATION WHICH MUST BE SUBMITTED BY THE CONTRACTOR**

1. The following information shall be submitted with the *Contractor’s* bid:

1. Completed Proposal Form
2. Completed Bid Breakdown
3. Labor and Equipment Rates
4. Proposed Construction Schedule
5. List of Subcontractors and Qualifications
6. Resume of proposed Construction Superintendent.

**Note**: The *Contractor’s* bid proposal will not be considered if any of the above items are missing.

2. The following information must be submitted to the *Buckeye* *Site Representative* prior to beginning any construction:

1. Operator Qualification Certifications to be entered into ISNetworld prior to the kickoff meeting.
2. Welders Qualifications
3. Proposed Substitutions
4. Completed Certificate of Insurance for *Subcontractors*
5. Bore (or Directional Drill) Plan as described in Attachment 7 of Buckeye’s “Standard Construction Specification for Trenchless Pipeline Excavation”.

3. A copy of the One Call Form with the call identification number must be submitted to the *Buckeye Site Representative.*

4. The following information must be submitted by the *Contractor* at the completion of construction:

1. Original copies of pressure test information (deadweight, pressure and temperature recorder calibration certificates, pressure and temperature recording charts, pressure test procedures, completed Pressure Test Forms, completed deadweight logs)
2. Completed as-built drawings including weld map
3. Completed Pipeline Depth As-Built Data Table as shown on the engineered Contract Drawings.
4. A written log of all calls made to One Call Systems and landowners, utilities, and other third parties listed on the Property Line List.
5. Completed Release of Liens and Affidavit
1. Construction schedule updated as of June 22, 2015. [↑](#footnote-ref-1)