Gmail

Josh Arneson <jarneson@richmondvt.gov>

Pre-Construction meeting

1 message

Snelling, Randy <Randy.Snelling@vermont.gov> Tue, Mar 8, 2022 at 2:15 PM
To: ej <ej@jhutchinsinc.com>, "jesse@jhutchinsinc.com" <jesse@jhutchinsinc.com>, "chris@jhutchinsinc.com" <chris@jhutchinsinc.com>, AOT - DMF District 5 189 Troy Ave Conf Rm <AOT.DMFDistrict5189TroyAveConfRm@vermont.gov>
Cc: "Boisvert, Sonya" <Sonya.Boisvert@vermont.gov>, "Judge, Colin" <Colin.Judge@vermont.gov>, "Smith, Jeremy" <Jeremy.Smith@vermont.gov>, "Lafountain, Shawn" <Shawn.Lafountain@vermont.gov>, "Bloch, Dean" <dean@townofcharlotte.com>, "Town of Charlotte_Road_Foreman (Junior Lewis)" <lewisexcavating@gmavt.net>, "City of South_Burlington_PW (Justin Rabidoux)" <jrabidoux@sburl.com>, "Town of Shelburne_Road_Foreman (Paul Goodrich)" <pgoodrich@shelburnevt.org>, "Town of Richmond_Town_Administrator (Paul Bohne Acting)" <townadministrator@gmavt.net>, "Grover, Amy" <clerkbolton@gmavt.net>, "Atkins, Ashley" <Ashley.Atkins@vermont.gov>, "Snelling, Randy" <Randy.Snelling@vermont.gov>, Peter Gosselin <pgosselin@richmondvt.gov>, "Town of Shelburne_Director_of_Administration (Ann Janda)" <ajanda@shelburnevt.org>, "Rea, Chris" <Chris.Rea@vermont.gov>, "Cartularo, Nicholas" <Nicholas.Cartularo@vermont.gov>

Good afternoon all,

There will be a pre-construction conference for two culvert replacement projects coming up this spring, which you are invited to. Both these projects will be happening between April 15th and June 11th.

The first will be for the Charlotte – Shelburne NH CULV (82) Project on US 7 @ 10:00 AM, at the District 5 Office Conference room at, 189 Troy Avenue Colchester VT.

The second will be for the Richmond – Bolton STP CULV (86) US 2 Project @ 11:00 am same room, and address.

Regards,

Randy

Randy Snelling | District Tech VII

District 5, Maintenance Bureau

189 Troy Ave | Colchester, VT 05446

Office 1-(802)-655-1580 | Cell (802)-343-4934

Randy.Snelling@vermont.gov

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AGENCY OF TRANSPORTATION

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2 attachments

IDIQ Pre-Con Meeting Memo Charlotte - So. Burlington NH CULV (82).doc
224K

IDIQ Pre-Con Meeting Memo.doc
222K

VERMONT

State of Vermont
One National Life Drive
Montpelier, VT 056335001
www.vtrans.vermont.gov
[tdd] 800-253-0191

Agency of Transportation

TO: Distribution List

FROM: Randy Snelling, Resident Engineer

DATE: March 8, 2022

SUBJECT: Richmond - Bolton STP CULV (86)

A Pre-Construction Conference, for the above-referenced project, has been scheduled for:

Day/Date: Thursday March 24, 2022
Time: 11:00AM
Location: District 5 conference room, 189 Troy Avenue Colchester VT

Description & Location of Project: Small culvert replacements from Richmond MM 0.00 - Bolton MM 1.86 on US 2

Distribution

Civil Rights: Sonya Boisvert, Beth Meyer-Ehrich
Contractor: J. Hutchins, Inc.
Project Manager: Ashley Atkins

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VERMONT

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Agency of Transportation

SCOPE OF WORK

VTrans has been tasked to create projects to stimulate the economy to help contractors get back to work. In response, the Agency created a Small Culvert Replacement Program to analyze culvert conditions within certain proposed FPAV project limits. This Program is to layout a streamlined approach to replacing culverts deemed in poor condition, failing, and/or undersized pipes ahead of scheduled paving projects.

SITE LOCATION

US Route 2, Richmond MM 0.00 – Bolton MM 1.86

Culvert Replacement List

- US Route 2, Bolton, MM 1.4, PID # 64402, 24", CSP, 78'
- US Route 2. Bolton, MM .5, PID # 64408, 18", CSP, 78'
- US Route 2, Bolton, MM .5, PID # 64410, 18", CSP, 66'
- US Route 2, Bolton, MM .2, PID # 64413, 36", CSP, 76'
- US Route 2, Bolton, MM .1,PID # 64415, 18", CSP, 72'
- US Route 2, Richmond, MM 5.8, PID #64424, REMOVE
- US Route 2, Richmond, MM 5.6, PID # 64428, 18", CSP, 50'
- US Route 2, Richmond, MM 5.3, PID # 64436, 18", CSP, 50'
- US Route 2, Richmond, MM 4.9, PID # 64438, 18", CSP, 52'
- US Route 2, Richmond, MM 4.7, PID # 64443, 36", CSP, 46'
- US Route 2, Richmond, MM 4.6, PID # 64446, 18", CSP, 44'
- US Route 2, Richmond, MM 4.3, PID # 64449, 24", CSP, 40'
- US Route 2, Richmond, MM 3.8, PID # 64454, 24", CSP, 50'

Description of Work: Work shall consist of the replacement of the above listed drainage culverts. See attached Typical Culvert Section, attached Drainage Detail Spreadsheet and details below.

- All work shall be done to the satisfaction of the authorized VTrans representative and shall comply with, to the extent possible, the 2018 version of the Vermont Agency of Transportation's Standard Specifications for Construction (https://vtrans.vermont.gov/highway/construct-material/construct-services/pre-contractspecifications/active).
- **Item 204.22 Trench Excavation of Earth, Exploratory (N.A.B.I.) unit price shall be $75.00 per CY.**
- The contractor shall provide all labor, equipment, and materials, including safety measures (trenching and shoring), required to perform the necessary work.

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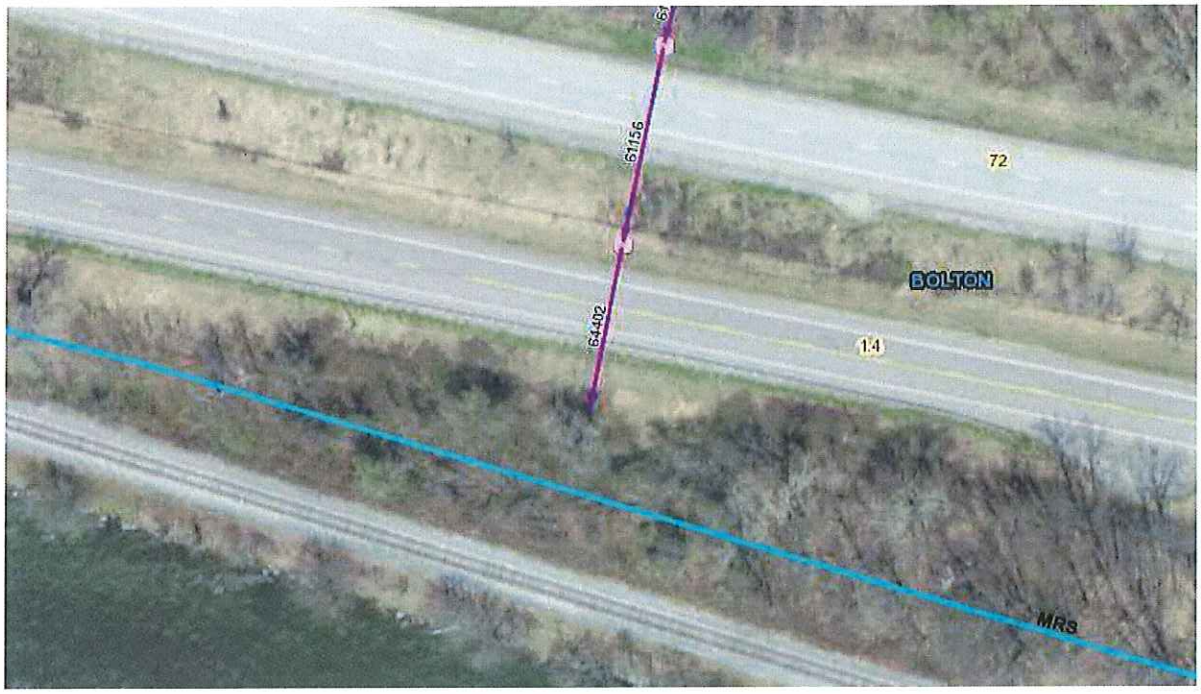
- The contractor shall provide all labor, equipment, and materials, including safety measures (trenching and shoring), required to perform the necessary work.
- No work shall be performed outside the toe of slope including access, dewatering, etc.
- Work shall consist of, but not limited to, excavation, dewatering, bedding and the removal and installation of the drainage culvert to include all necessary bands, collars, end sections, stone fill, backfill, pavement placement, seeding, mulching and all other items appurtenant to a drainage pipe. The contractor shall be responsible for the removal and disposal of the old pipe and unsuitable material.
- The contractor shall be responsible for calling Dig Safe and securing a ticket number prior to work. Please note that the Vermont Agency of Transportation is not a member of Dig Safe. The contractor shall also contact Dan Ertel, State Signal Supervisor, at (802) 343-2188 to locate and mark all existing buried utility facilities owned by the Agency near the locations of proposed work.
- The contractor shall perform all work in compliance with VOSHA/OSHA regulations.
- Traffic Control shall be the responsibility of the contractor. Part 6 (Temporary Traffic Control) of the most current version of the Manual on Uniform Traffic Control Devices (MUTCD) establishes the traffic control standards and guidelines for street and highway maintenance operations. All traffic control necessary to perform all operations within the project shall comply with the most current MUTCD requirements. The contractor shall submit a traffic control plan for approval prior work beginning.
- Construction will be performed in such a way as to minimize conflicts with normal highway traffic. When two-way traffic cannot be maintained, a sign package that conforms to the MUTCD and trained Flaggers shall be provided. In addition, VTrans may require the presence of Uniform Traffic Officers (UTOs). The presence of UTOs shall not excuse the contractor from its obligation to provide the sign package and Flaggers.
- Both "Bump Ahead" and "Motorcycles Use Caution" signs shall be placed at unpaved culvert crossings in both directions. Signs shall be placed to provide adequate notification to motorists.
- New culverts shall be installed on the same alignment and at the same depth/elevation or as directed by the Resident Engineer. Bell or grooved ends of rigid pipes and the outside circumferential laps of flexible pipe shall be placed facing upstream. The pipe and pipe sections shall be installed in a uniform and consistent manner creating a smooth and consistent flowline as viewed through the pipe.
- All backfill material shall be made in six inch (6") maximum lifts and compacted to no less than a 95% maximum dry density within the roadway prism.
- Bedding material shall be placed in the bottom of the excavation four inches (4") below the pipe and shall be used to backfill up to one foot (1') over the pipe.
- Material under the sub-base line shall be replaced with excavated (native) material unless the material is deemed unsuitable by Resident Engineer. If material is deemed unsuitable, the contractor may be directed to use Item 204.30 - Granular Backfill for Structures.

- The sub-base shall consist of 18 inches (18") of Item 301.35 - Subbase of Dense Graded Crushed Stone.
- All excavation shall be filled at the end of each day. An excavation shall be paved prior to the weekend (COB Friday), holiday, or as director by the Resident Engineer. Granular riding surfaces shall be maintained daily to provide a smooth riding surface free of potholes and drop-offs.
- Contractor shall maintain access to all business and residential drives, or make arrangements with property owners prior to work being done.
- All asphalt joints shall be saw cut. Emulsified asphalt shall be applied to all cut and milled surfaces at a rate of 0.08 gal/SY prior to paving. All removed asphalt shall be replaced with three and one-half inches (3 ½") of Type II State approved base and one and one-half inches (1 ½") of Type III State approved mix wearing course.
- The contractor shall mill an additional one foot (1') wide keyway to a depth of one and one-half inches (1 ½") of existing pavement (around the saw-cut edges) to tie in/key in the final patch pavement. Cold-planing (milling) may be accomplished by either a milling attachment on a skid steer or a self-propelled cold planer. It is recommended to only cold plane areas that can be paved that day.
- Asphalt and dense graded sub-base crushed gravel quantities shall be calculated and paid based on the diameter of the new culvert with an additional four feet (4') of width. Additional asphalt and dense graded crushed gravel material shall be considered incidental to the culvert bid item.
- Where applicable, fifty feet (50') of ditch line shall be reestablished in both directions of the pipe's inlet and outlet to promote proper flow. All disturbed areas shall be seeded and mulched same day.

US 2 Richmond- Bolton CULV(86): PID 64402 Scope of Work

Location:

1228 ft (0.232 miles) East of centerline of the driveway of Long Trail Parking Lot (44°22'45.1"N 72°54'40.9"W) on RT 2, Bolton VT 05676.



Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Remove guard rail on EB side of road for access.

Remove and replace metal ROW fencing on WB side if needed.

Brush clearing will be needed on WB side of road.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 84ft long 24" CMP culvert and dispose of at an approved location.

The outlet of the culvert will be shortened 4ft from 84ft to 80ft and the new pipe to be laid at the same alignment and grade unless directed otherwise by the Resident Engineer.

Install a 80ft long 24" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Install 17" of dense graded crushed stone, finely grade, and pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Install aggregate shoulder material.

Install a new steel marker post on the EB culvert end and reinstall the old steal marker post on the WB side.

Reset guardrail on EB side of road.

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

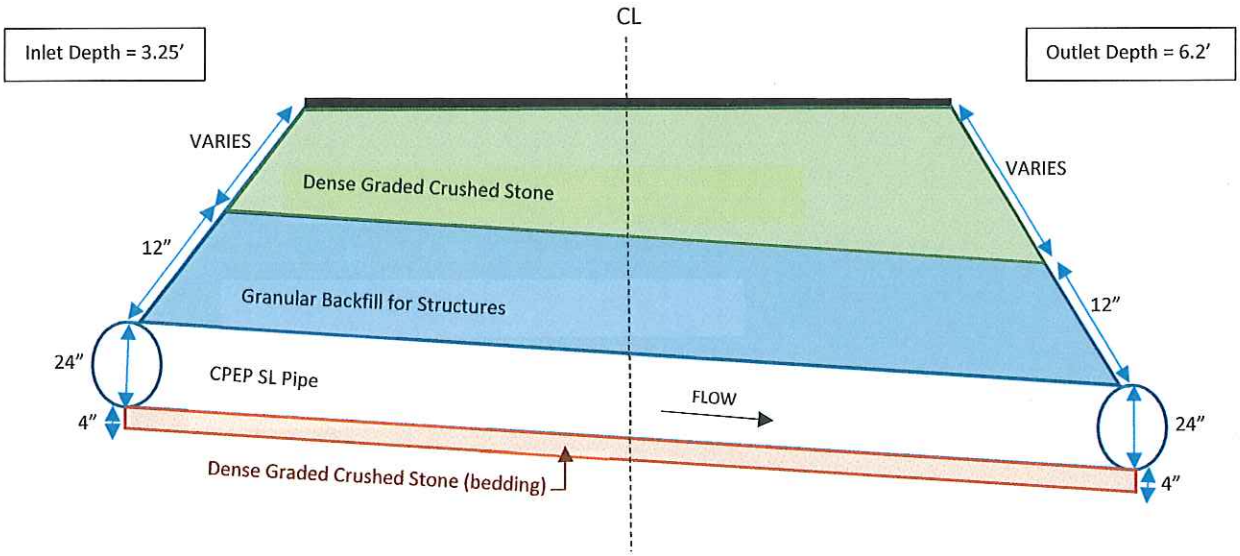
Install line striping in kind.

Site Notes:

Please note that there are overhead wires on the EB side of road. It will be the contractor's responsibility to protect the utility during construction.

Cross Section:

PID 64402



Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS

US 2 Richmond- Bolton CULV(86): PID 64408 Scope of Work

Location:

1157ft (0.219 miles) West from the Notch Rd intersection with Rt 2, Bolton.

Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Remove ROW fencing on WB side.

One tree (~1ft diameter) on the WB side of road will need to be removed.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 78ft long 18" CMP culvert and dispose of at an approved location.

Install a 78ft long 18" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Install 9" of dense graded crushed stone, finely grade, and pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Install aggregate shoulder material.

Install new steel marker posts on both inlet (WB) and outlet (EB) of culvert.

Reset ROW fence on WB side of road.

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

Install line striping in kind.

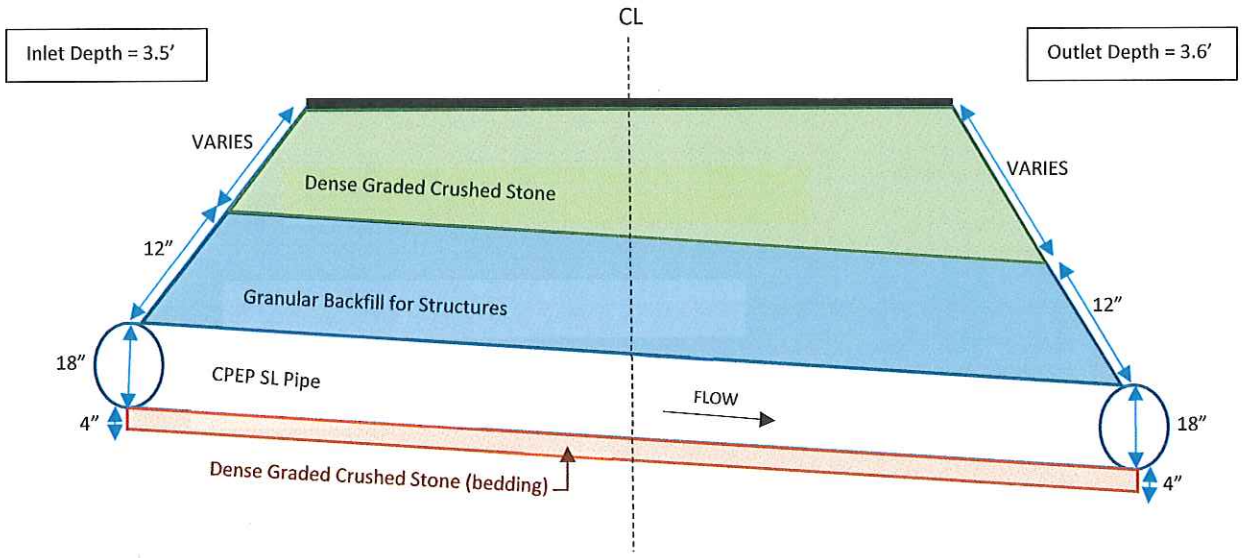
Site Notes:

Please note that there are overhead wires on the EB side of road. It will be the contractor's responsibility to protect the utility during construction.

Railroad clearance will be needed to work on the EB side

Cross Section:

PID 64408



Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS

US 2 Richmond- Bolton CULV(86): PID 64410 Scope of Work

Location:

1928ft (0.365 miles) West from the Notch Rd intersection with Rt 2, Bolton.

Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Remove ROW fencing on WB side.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 66ft long 18" CMP culvert and dispose of at an approved location.

Install a 66ft long 18" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Install 12" of dense graded crushed stone, finely grade, and pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Install aggregate shoulder material.

Install new steel marker posts on both inlet (WB) and outlet (EB) of culvert.

Reset ROW fence on WB side of road.

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

Install line striping in kind.

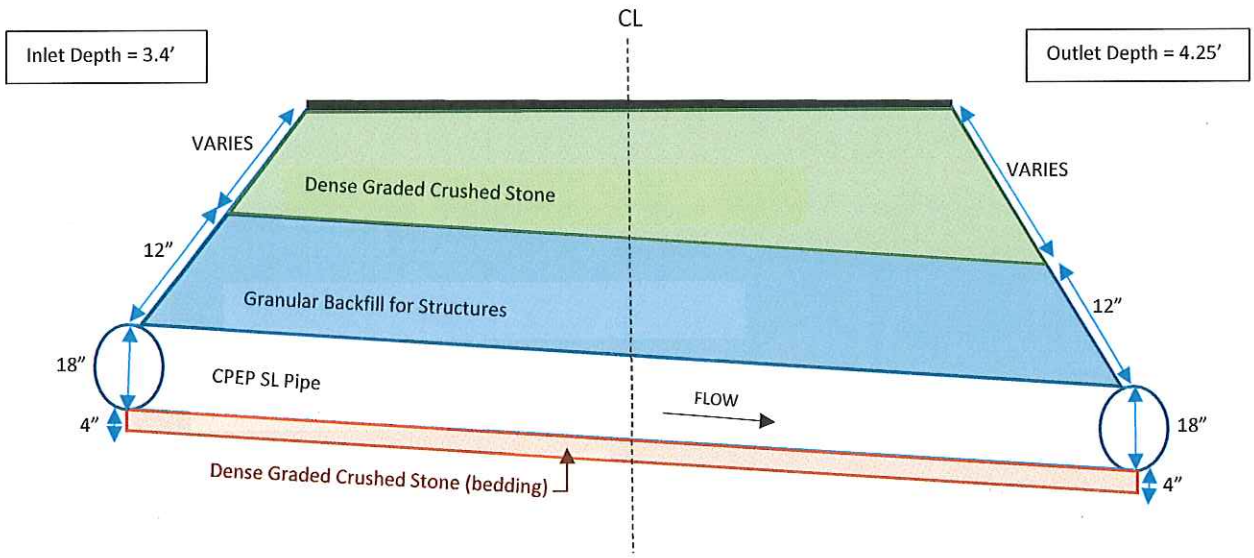
Site Notes:

Please note that there are overhead wires on the EB side of road. It will be the contractor's responsibility to protect the utility during construction.

Railroad clearance will be needed to work on the EB side

Cross Section:

PID 64410



Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS

US 2 Richmond- Bolton CULV(86): PID 64413 Scope of Work

Location:

448ft (0.085 miles) West of Rosewood Ln intersection with Rt 2, Bolton.

Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Remove guardrail on EB side of road for access.

Brush clearing will be needed on both the EB and WB sides of the road.

Two dead trees on the EB side of road will need to be removed.

Saw cut and remove pavement to be marked in field.

Dewatering processes will need to be taken before excavation due to the perennial stream status going through this culvert.

New culvert is to be set 6" below the current elevation of the existing culvert. All permit requirements surrounding work on this culvert must be upheld.

Excavate and remove existing 76ft long 36" CMP culvert and dispose of at an approved location.

Install a 76ft long 36" CSP pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Armor the outlet end of the culvert by placing stone fill type II on slope.

Install aggregate shoulder material.

Install a new steel marker post on the culvert inlet (WB) and reinstall previous marker post on outlet (EB).

Reset guardrail on EB side of road.

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

Install line striping in kind.

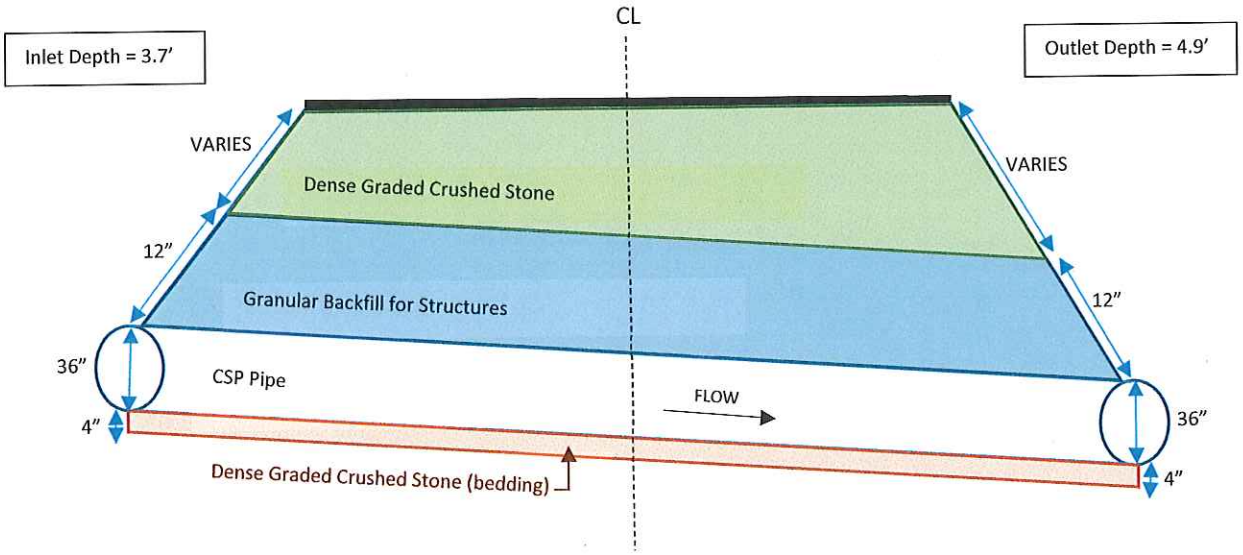
Site Notes:

Please note that there are overhead wires on the WB side of road. It will be the contractor's responsibility to protect the utility during construction.

Railroad clearance will be needed to work on the EB side.

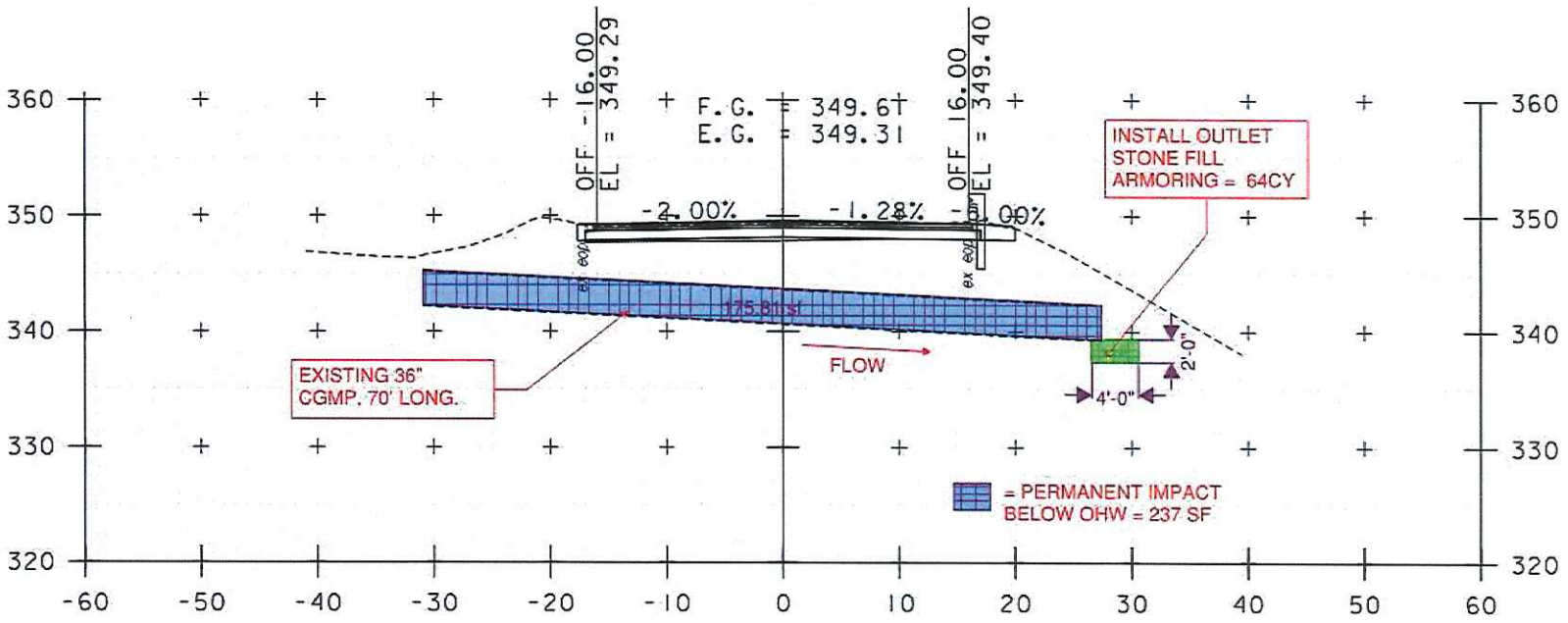
Cross Section:

PID 64413



Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS



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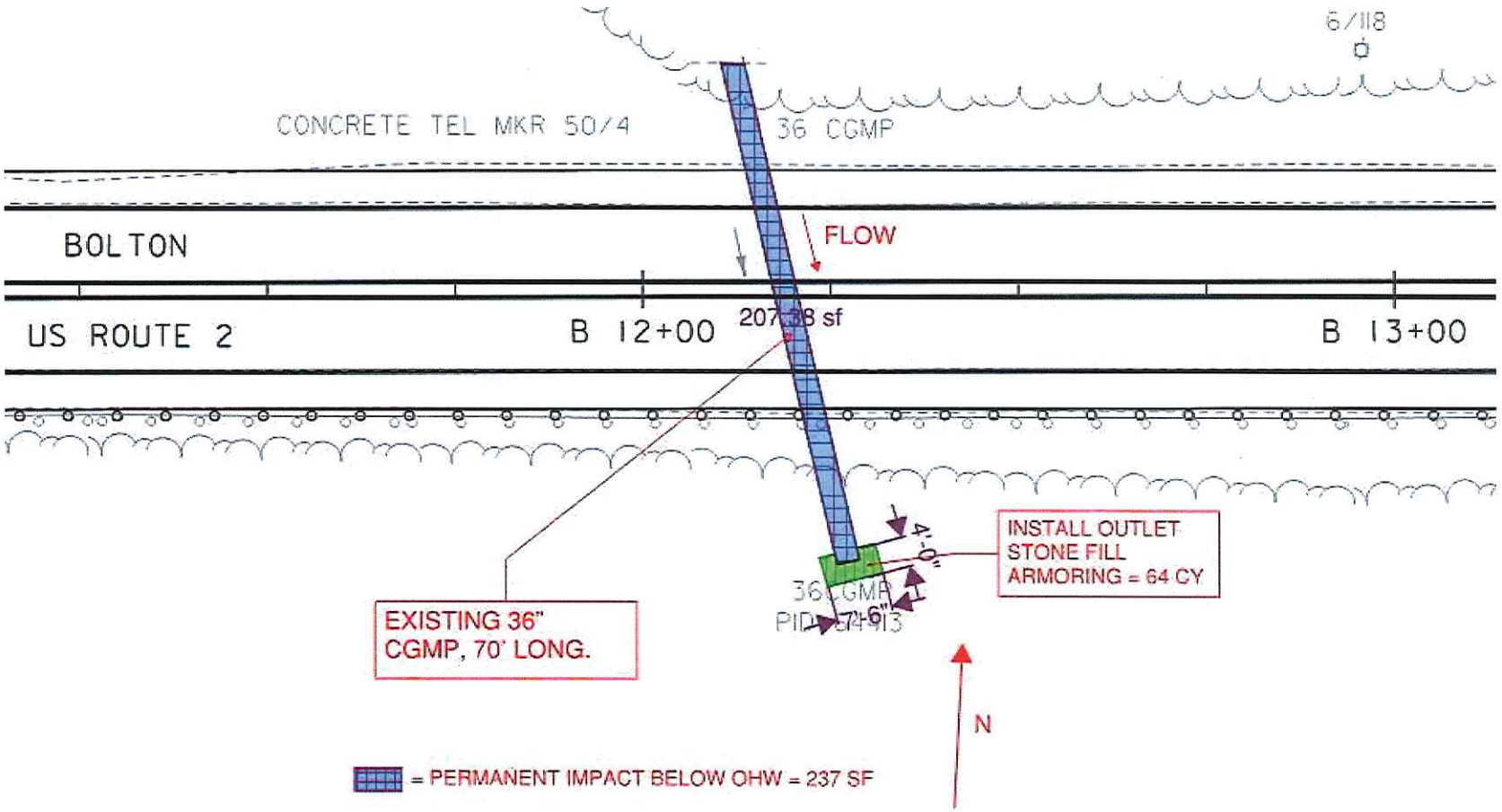
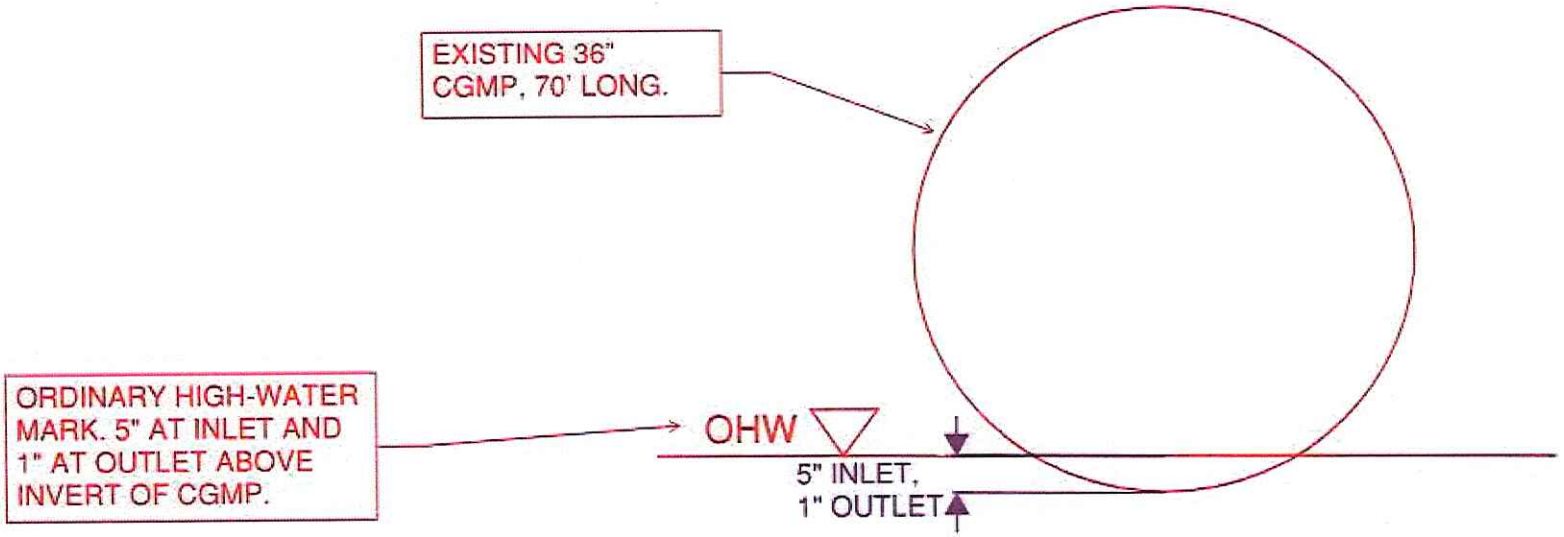
PID 64413 36" CGMP
US-2 MM 0.2 BOLTON

CROSS SECTION
MHG 07/01/2021
SHEET 1 OF 3



PID 64413 36" CGMP
US-2 MM 0.2 BOLTON

PLAN VIEW
MHG 07/01/2021
SHEET 2 OF 3



PID 64413 36" CGMP
US-2 MM 0.2 BOLTON

CULVERT CROSS SECTION DETAIL
MHG 07/01/2021
SHEET 3 OF 3

US 2 Richmond- Bolton CULV(86): PID 64415 Scope of Work

Location:

169ft (0.032 miles) West from centerline of the driveway of 5490 Theodore Roosevelt Hwy, Bolton, VT 05676.

Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Remove guardrail on EB side of road for access.

Brush clearing will be needed on the EB side of the road.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 55ft long 15" RCP culvert and dispose of at an approved location.

The outlet of the culvert will be extended 8ft from 55ft to 64ft and the new pipe to be laid at the same alignment and grade unless directed otherwise by the Resident Engineer.

Install a 64ft long 18" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Install 17" of dense graded crushed stone, finely grade, and pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Install aggregate shoulder material.

Install a new steel marker post on the culvert outlet (EB) and reinstall previous marker post on inlet (WB).

Reset guardrail on EB side of road.

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

Install line striping in kind.

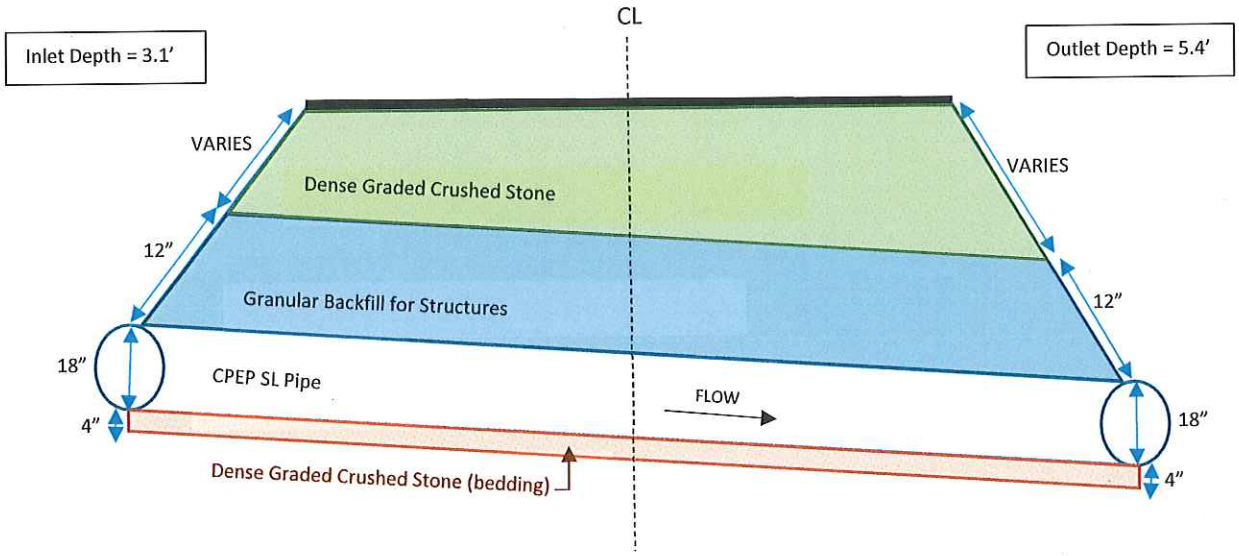
Site Notes:

Please note that there are overhead wires on the WB side of road. It will be the contractor's responsibility to protect the utility during construction.

Railroad clearance will be needed to work on the EB side.

Cross Section:

PID 64415



Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS

US 2 Richmond- Bolton CULV(86): PID 64424 Scope of Work

Location:

Located in between the two I-89 overpasses in Richmond. 295ft (0.056 miles) west from centerline of the driveway of 3114 E Main St, Richmond, VT 05477.

Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Remove and replace wildlife fencing both sides if needed.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 42ft long 12" CMP culvert and dispose of at an approved location, then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Install 4" of dense graded crushed stone, finely grade, and pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

Install line striping in kind.

Site Notes:

Please note that there are overhead wires on the WB side of road. It will be the contractor's responsibility to protect the utility during construction.

US 2 Richmond- Bolton CULV(86): PID 64428 Scope of Work

Location:

37ft Westbound from Labounty Ln, Richmond, 05477.

Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Remove and reset "SPEED LIMIT 40" sign on EB side of road if needed.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 46ft long 15" RCP culvert and dispose of at an approved location.

The inlet of the culvert will be extended 3ft from 46ft to 49ft and the new pipe to be laid at the same alignment and grade unless directed otherwise by the Resident Engineer.

Install a 49ft long 18" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Install aggregate shoulder material.

Install a new steel marker post on both the culvert inlet (WB) and outlet (EB).

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

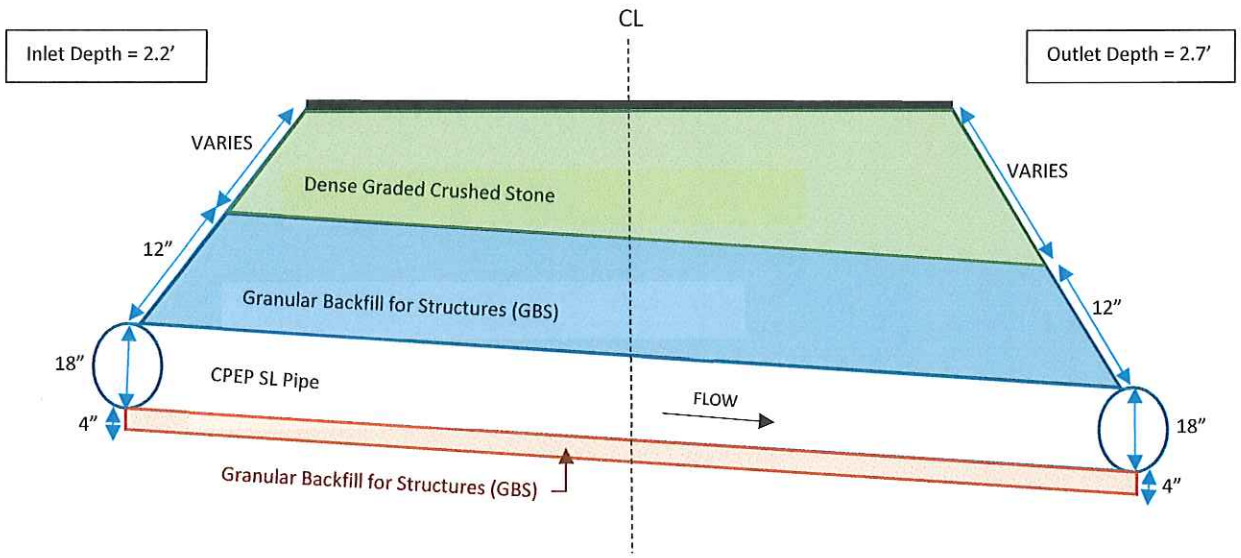
Install line striping in kind.

Site Notes:

Please note that there are overhead wires on the WB side of road. It will be the contractor's responsibility to protect the utility during construction.

Cross Section:

PID 64428



Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS

US 2 Richmond- Bolton CULV(86): PID 64436 Scope of Work

Location:

Located on the eastern corner of the intersection of Lilly Pond Rd and Rt 2.

Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Remove and reset "LILY POND CIRCLE" sign on WB side of road.

Brush clearing will be needed on the EB side of the road.

Saw cut and remove pavement to be marked in field.

Dewatering processes will need to be taken before excavation due to the perennial stream status going through his culvert. All permits' requirements surrounding work on this culvert must be upheld.

Excavate and remove existing 57ft long 18" CMP culvert and dispose of at an approved location.

The outlet of the culvert will be shortened 3ft from 57ft to 54ft and the new pipe to be laid at the same alignment and grade unless directed otherwise by the Resident Engineer.

Install a 54ft long 18" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Install 18" of dense graded crushed stone, finely grade, and pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Install aggregate shoulder material.

Install a new steel marker post on both the culvert inlet (WB) and outlet (EB).

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

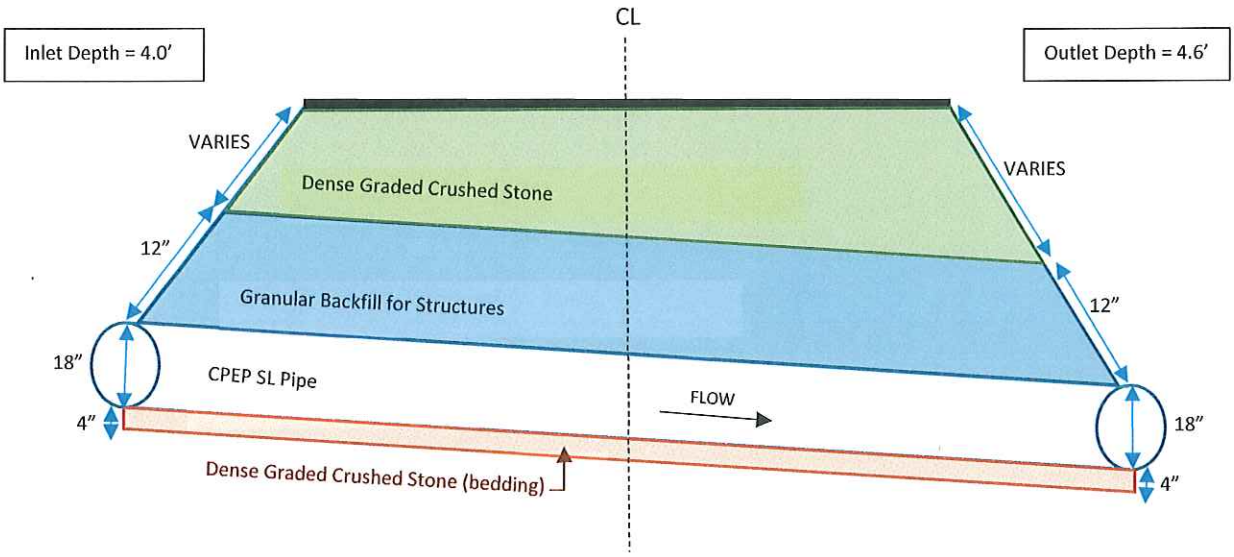
Install line striping in kind.

Site Notes:

Please note that there are overhead wires on the EB side of road. It will be the contractor's responsibility to protect the utility during construction.

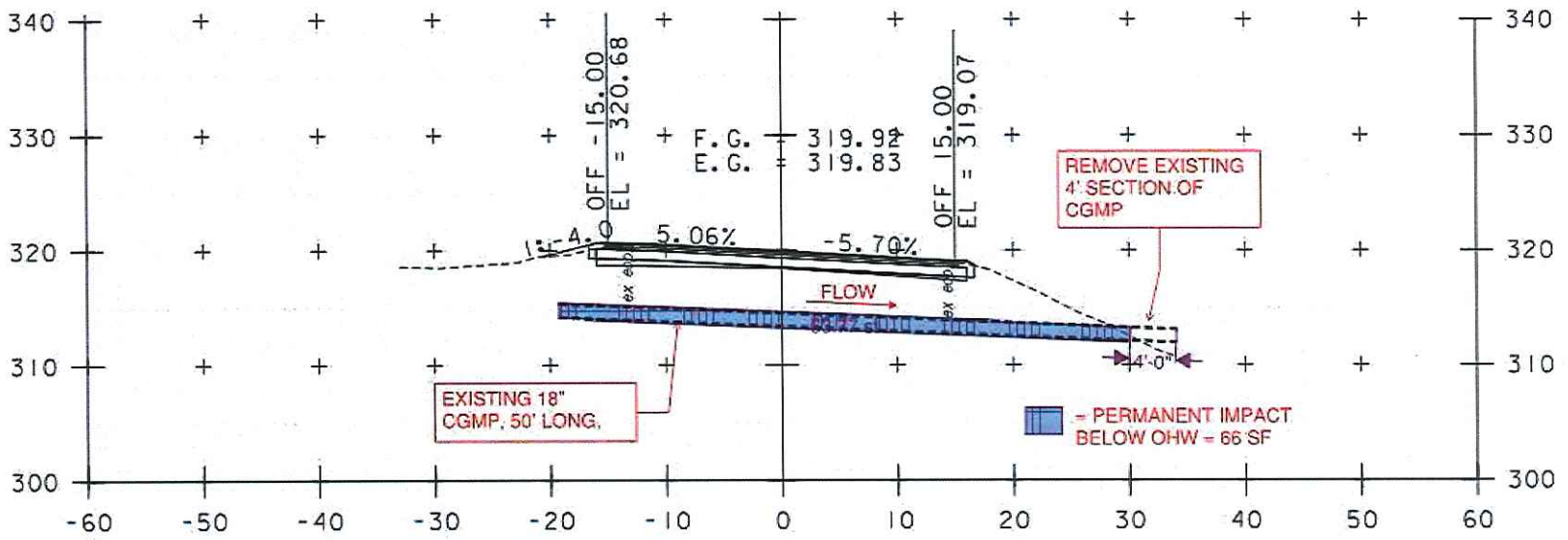
Cross Section:

PID 64436



Not to scale

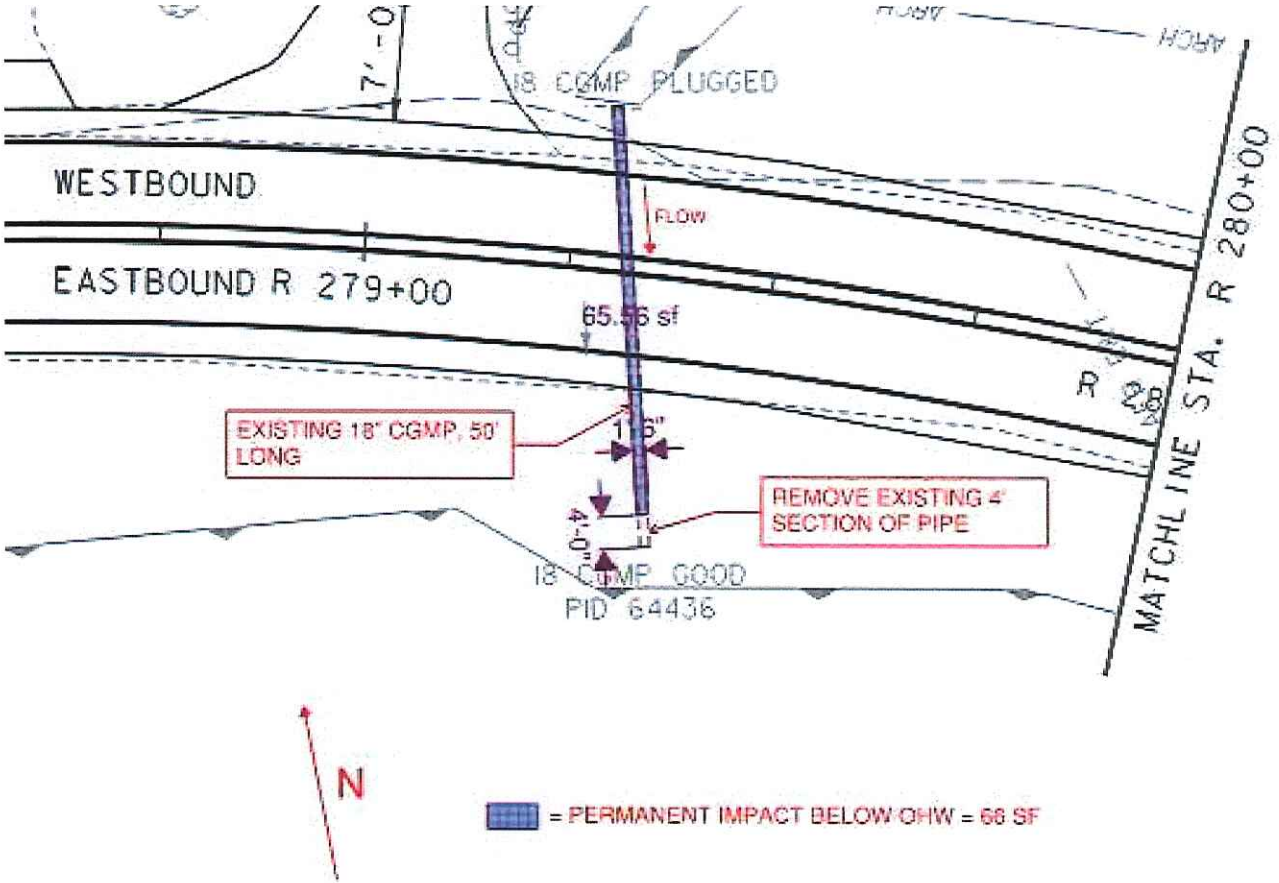
Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS



R 279+50

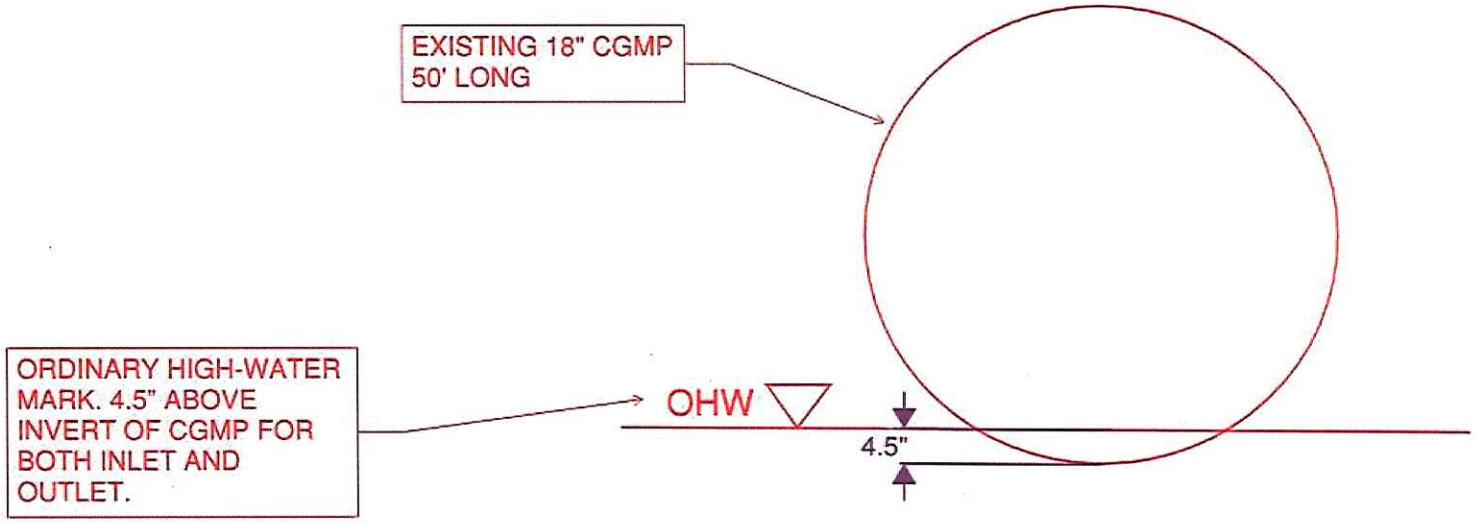
PID 64436 18" CGMP
US-2 MM 5.3 RICHMOND

CROSS SECTION
MHG 06/30/2021
SHEET 1 OF 3



PID 64436 18" CGMP
US-2 MM 5.3 RICHMOND

PLAN VIEW
MHG 06/30/2021
SHEET 2 OF 3



*NOT TO SCALE

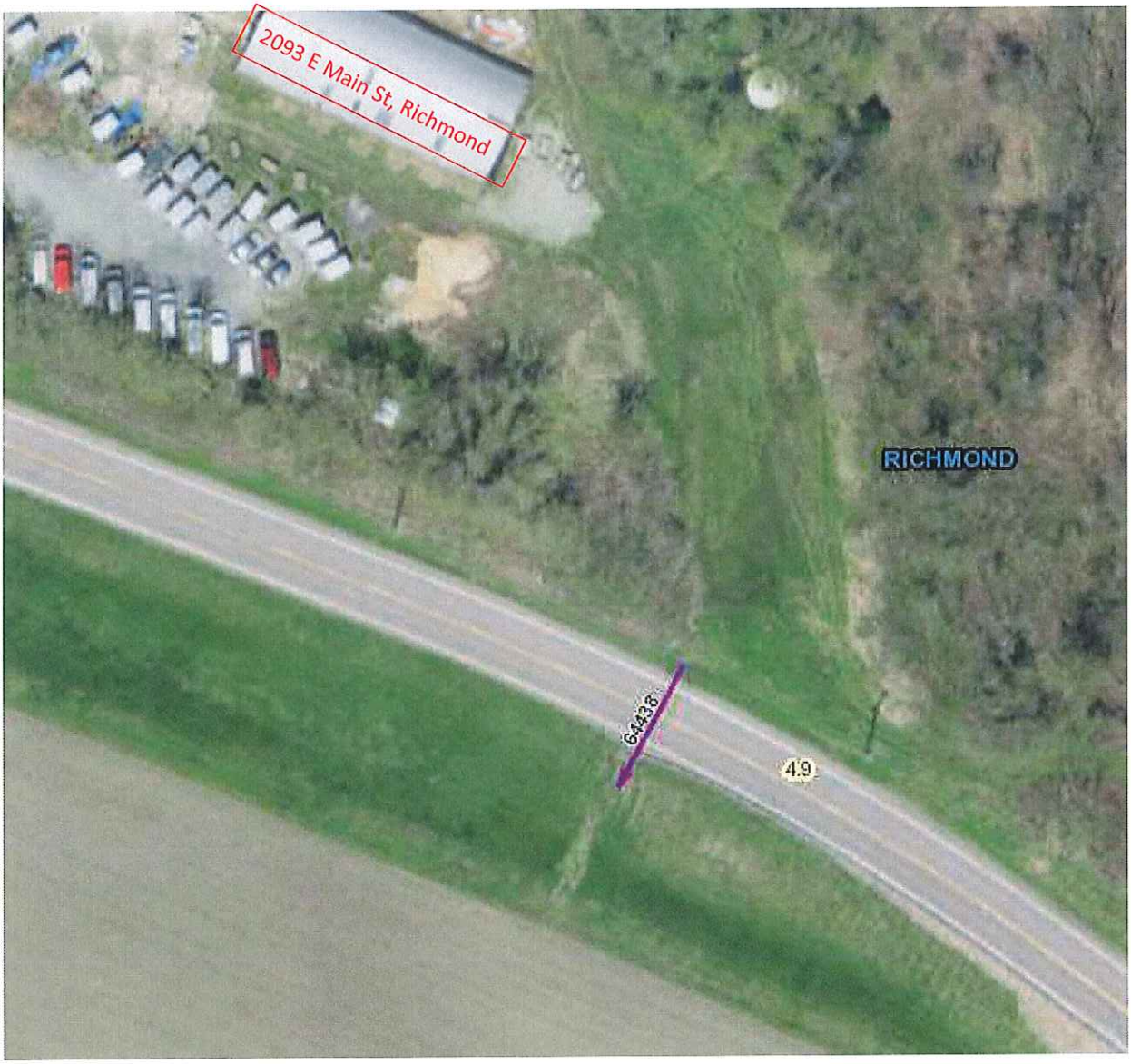
PID 64436 18" CGMP
US-2 MM 5.3 RICHMOND

CULVERT CROSS SECTION DETAIL
MHG 06/30/2021
SHEET 3 OF 3

US 2 Richmond- Bolton CULV(86): PID 64438 Scope of Work

Location:

450ft East from centerline of the driveway of 2093 E Main St (Rt 2), Richmond 05477.



Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Remove about 12ft guardrail and a guardrail end section on EB side of road for access.

Brush clearing will be needed on the WB side of the road.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 56ft long 18" CMP culvert and dispose of at an approved location.

The inlet of the culvert will be extended 3ft from 56ft to 59ft and the new pipe to be laid at the same alignment and grade unless directed otherwise by the Resident Engineer.

Install a 59ft long 18" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Install 11" of dense graded crushed stone, finely grade, and pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Armor the outlet end of the culvert by placing stone fill type II on slope.

Install aggregate shoulder material.

Replace guardrail on EB side of road and fix some erosion under the end section.

Install a new steel marker post on both the culvert inlet (WB) and outlet (EB).

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

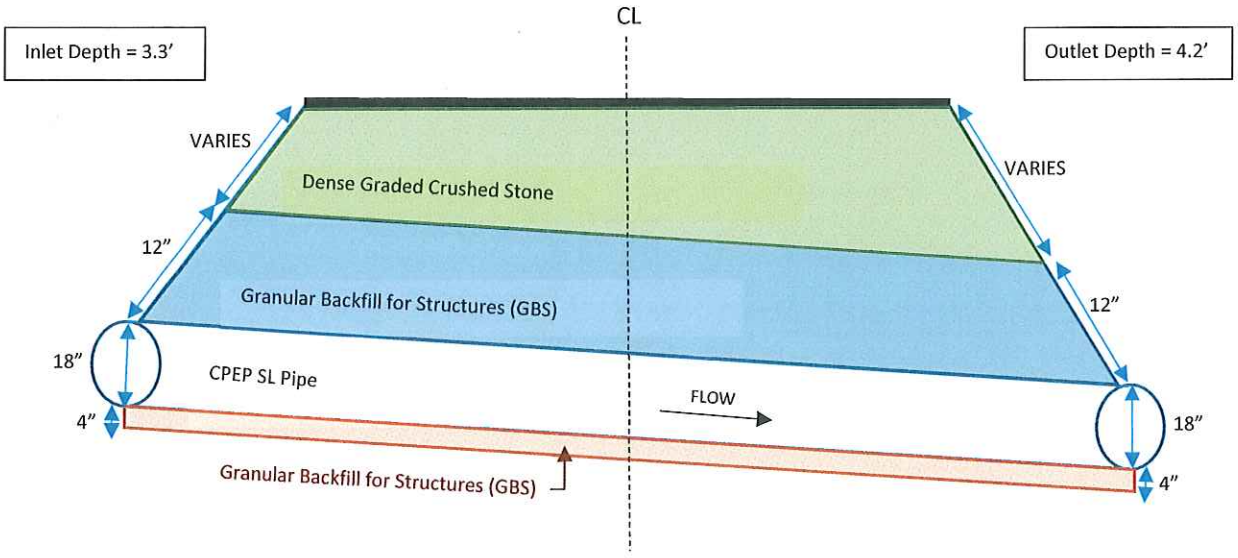
Install line striping in kind.

Site Notes:

Please note that there are overhead wires on the WB side of road. It will be the contractor's responsibility to protect the utility during construction.

Cross Section:

PID 64438



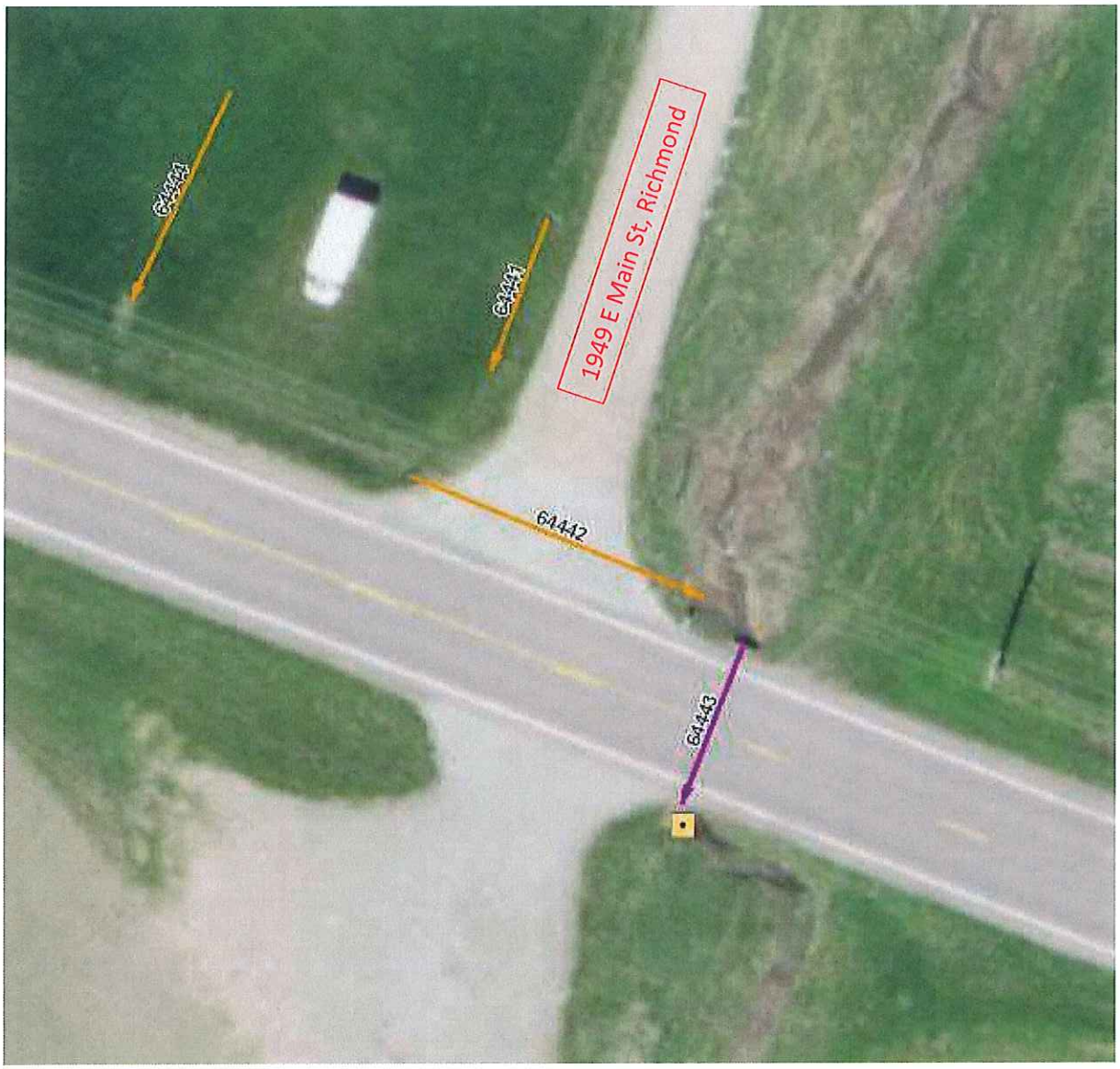
Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS

US 2 Richmond- Bolton CULV(86): PID 64443 Scope of Work

Location:

On the eastern corner of the driveway of 1949 E Main St, Richmond and Rt 2.



Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Saw cut and remove pavement to be marked in field.

Dewatering processes will need to be taken before excavation due to the perennial stream status going through his culvert. All permits' requirements surrounding work on this culvert must be upheld.

Removal of concrete and masonry at the outlet – remove concrete headwall.

Excavate and remove existing 36ft long 36" CMP culvert and dispose of at an approved location.

The skew of the pipe will be changed to connect to the existing field drainage swale, and a new length will increase from 36ft to 46ft. The depth of the pipe will the same.

Install a 46ft long 36" CSP pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Armor the outlet end of the culvert by placing stone fill type II on slope.

Install aggregate shoulder material.

Install a new steel marker post on both the culvert inlet (WB) and outlet (EB).

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

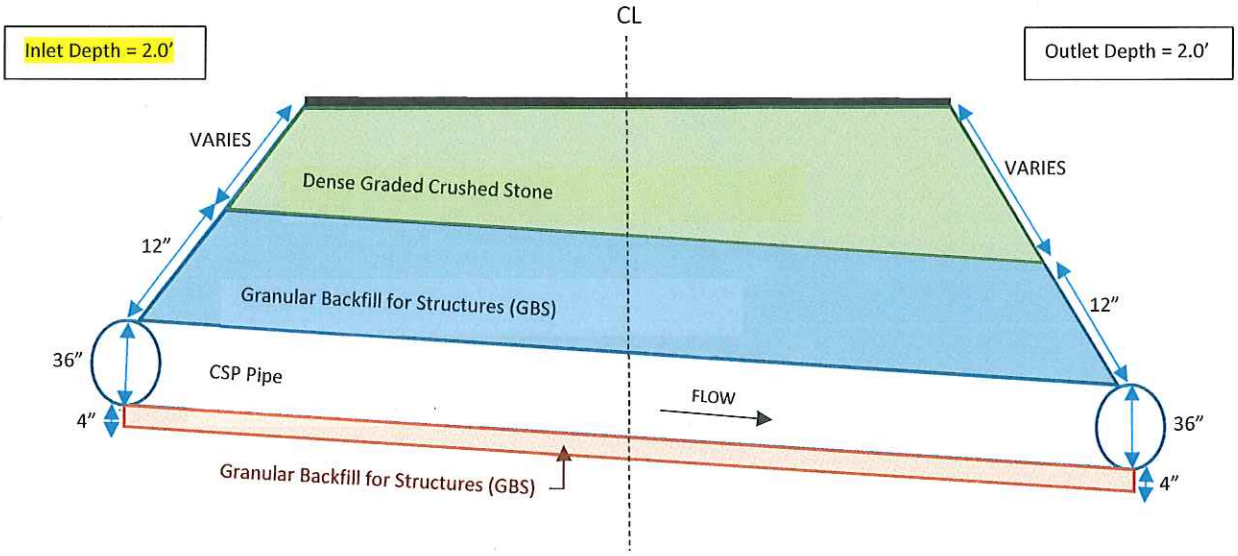
Install line striping in kind.

Site Notes:

Please note that there are overhead wires on the WB side of road. It will be the contractor's responsibility to protect the utility during construction.

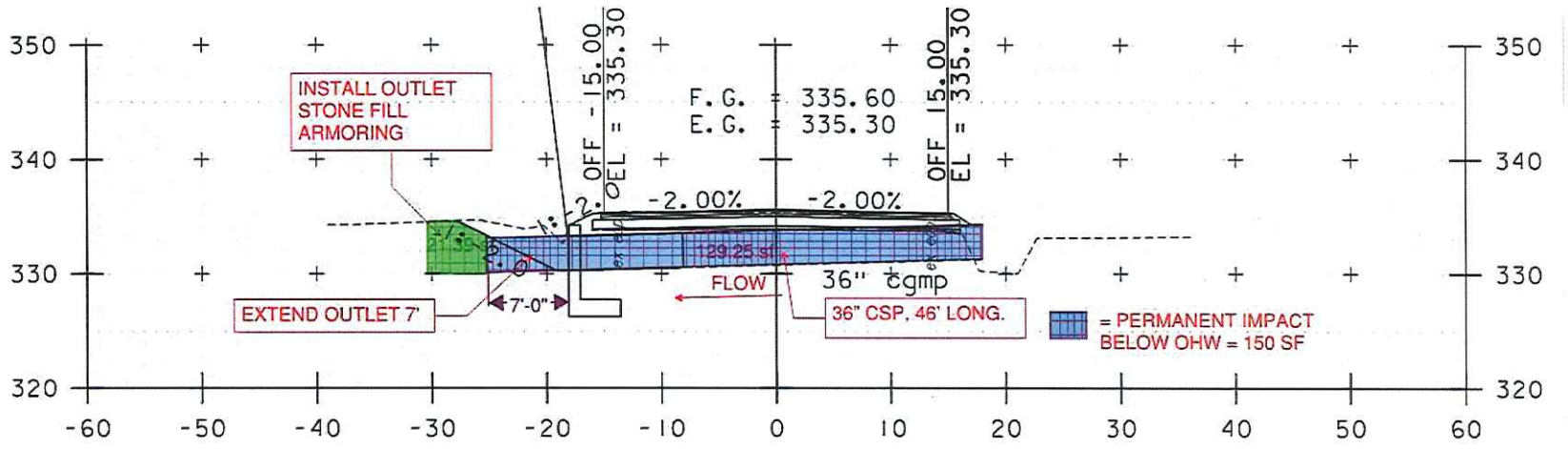
Cross Section:

PID 64443



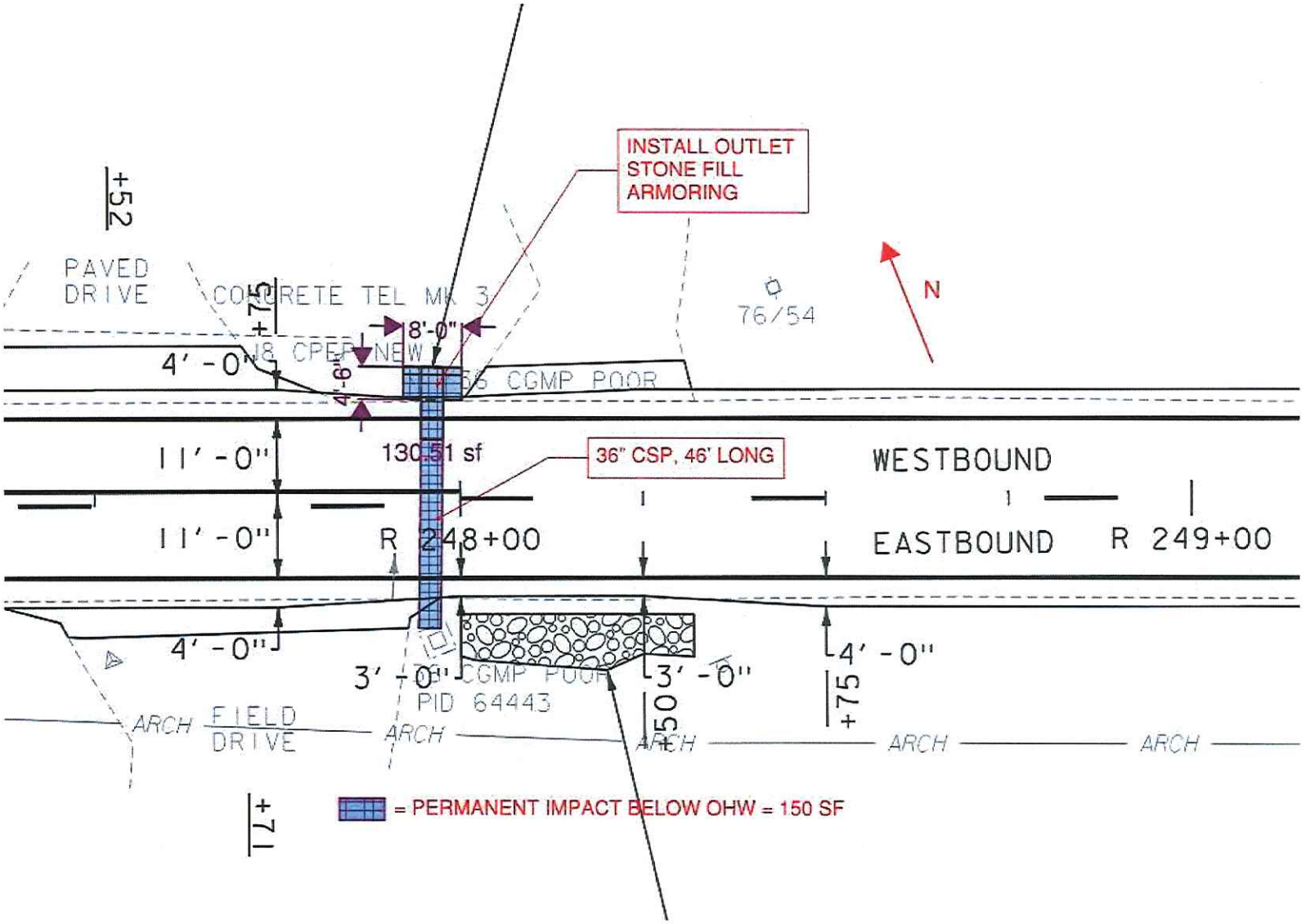
Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS



R 248+00

PID 64443 36" CGMP
US-2 MM 4.7 RICHMOND
CROSS SECTION
MHG
08/19/2021
SHEET 1 OF 2



PID 64443 36" CGMP
US-2 MM 4.7 RICHMOND

PLAN VIEW
MHG
08/19/2021
SHEET 2 OF 2

US 2 Richmond- Bolton CULV(86): PID 64446 Scope of Work

Location:

117ft West from centerline of the driveway of 1801 E Main St, Richmond on Rt 2.

Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 44ft long 18" CMP culvert and dispose of at an approved location.

Install a 44ft long 18" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Armor the outlet end of the culvert by placing stone fill type II on slope.

Install aggregate shoulder material.

Install a new steel marker post on the culvert inlet (WB) and reinstall the previous marker post on the outlet (EB).

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

Install line striping in kind.

Site Notes:

Please note that there are overhead wires on the WB side of road. It will be the contractor's responsibility to protect the utility during construction.

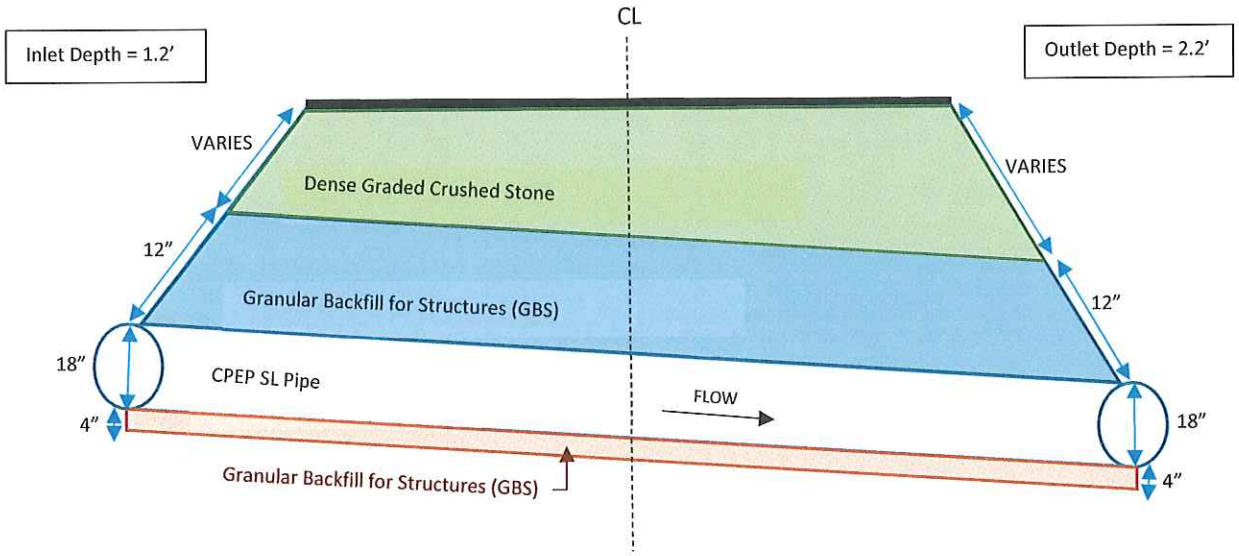
Be aware that there is a white post on the EB side of the rode close to the outlet of the culvert that could be a monitoring well for the property owners leach field or grey water system. It will be the contractor's responsibility to protect the utility during construction. (See photos below)

Figure 1 - White post and culvert marker post shown

Figure 2 - White post close up

Cross Section:

PID 64446



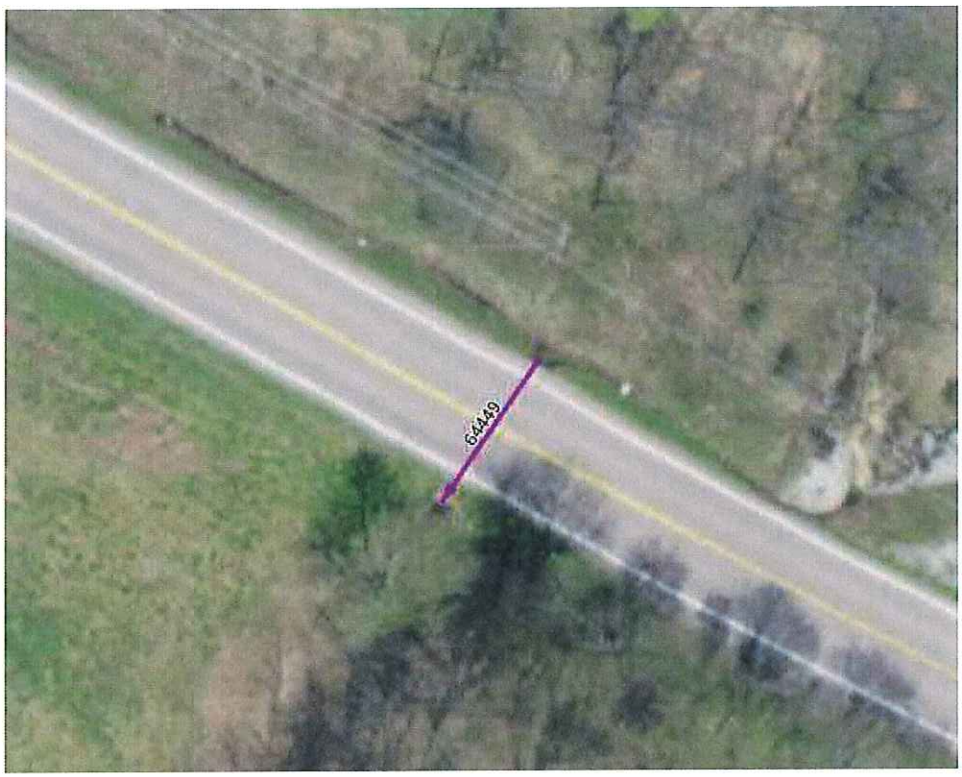
Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS

US 2 Richmond- Bolton CULV(86): PID 64449 Scope of Work

Location:

436ft West from centerline of the driveway of properties 1624 and 1686 E Main St, Richmond.



Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Brush clearing will be needed on both sides to access and work around the culvert.

One tree with a diameter of approximately 8-10 inches will need to be removed from the culvert flow path on the EB side of the road.

Removal or concrete and masonry – remove concrete head and wing walls on the WB side.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 33ft long 24" CMP culvert and dispose of at an approved location.

The inlet of the culvert will be extended 7ft and the outlet will be extended 14ft in total from 33ft to 54ft. The new pipe will be laid at the same alignment and grade unless directed otherwise by the Resident Engineer.

Install a 54ft long 24" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Install 8" of dense graded crushed stone, finely grade, and pave back in one 3.5" base lift of superpave bituminous concrete pavement (Type IIS) and one top 1.5" top lift of superpave bituminous concrete pavement (Type IIIS).

Fix the failed slope ~10ft from the culvert on the EB side – regrade and grub. (See image attached)

Install aggregate shoulder material.

Install a new steel marker post on the culvert outlet (EB) and reinstall the previous marker post on the inlet (WB).

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

Install line striping in kind.

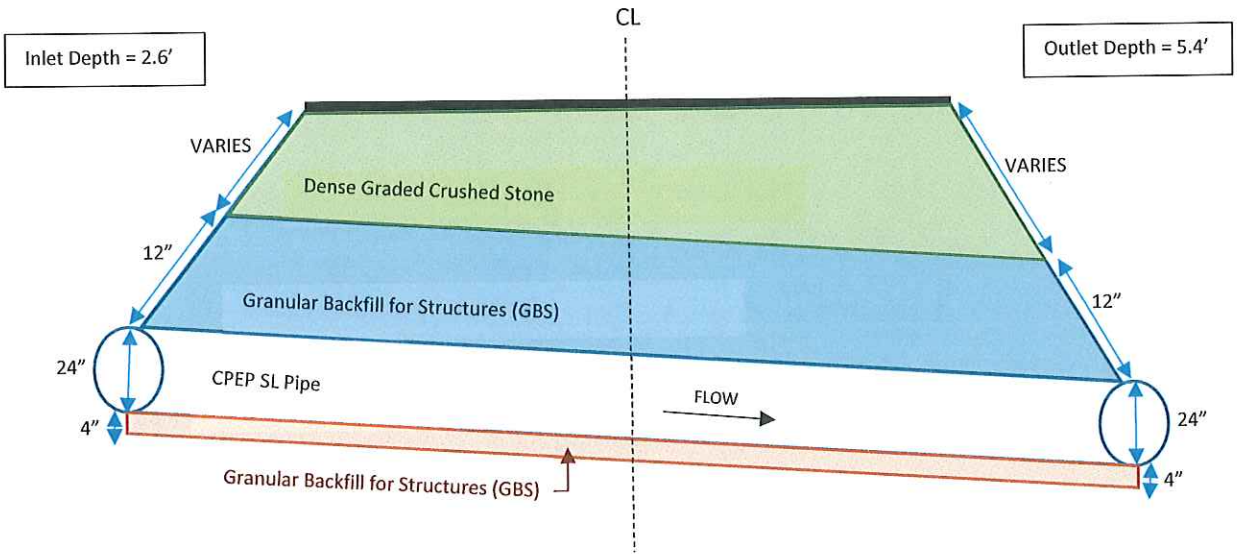
Site Notes:

Please note that there are overhead wires on the WB side of road. It will be the contractor's responsibility to protect the utility during construction.

Figure 1 - Slope to fix on EB side road ~10ft from outlet

Cross Section:

PID 64449



Not to Scale

Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS

US 2 Richmond- Bolton CULV(86): PID 64454 Scope of Work

Location:

216ft West from the centerline of the driveway of 1108 W Main St Richmond and about 30 ft from the corner of the driveway leading to the parking lot for the Andrews Community Forest trailhead.

Scope of Work:

Supply MUTCD compliant sign package and traffic control plan for approval.

Brush clearing will be needed on EB side to access and work around the culvert.

Dewatering processes will need to be taken before excavation due to the perennial stream status going through his culvert. All permits' requirements surrounding work on this culvert must be upheld.

Saw cut and remove pavement to be marked in field.

Excavate and remove existing 61ft long 24" CMP culvert and dispose of at an approved location.

The outlet of the culvert will be extended 2ft from 61ft to 63ft and the new pipe to be laid at the same alignment and grade unless directed otherwise by the Resident Engineer.

Install a 63ft long 24" CPEP SL pipe and bed it in 4" of granular backfill for structures (GBS), then backfill with GBS or approved granular material to a depth of 12" over the pipe.

Armor the outlet end of the culvert by placing stone fill type II on slope.

Install aggregate shoulder material.

Install new steel marker posts on both the culvert inlet (WB) and outlet (EB).

Install grubbings, seed, mulch, and fertilizer to disturbed areas.

Install line striping in kind.

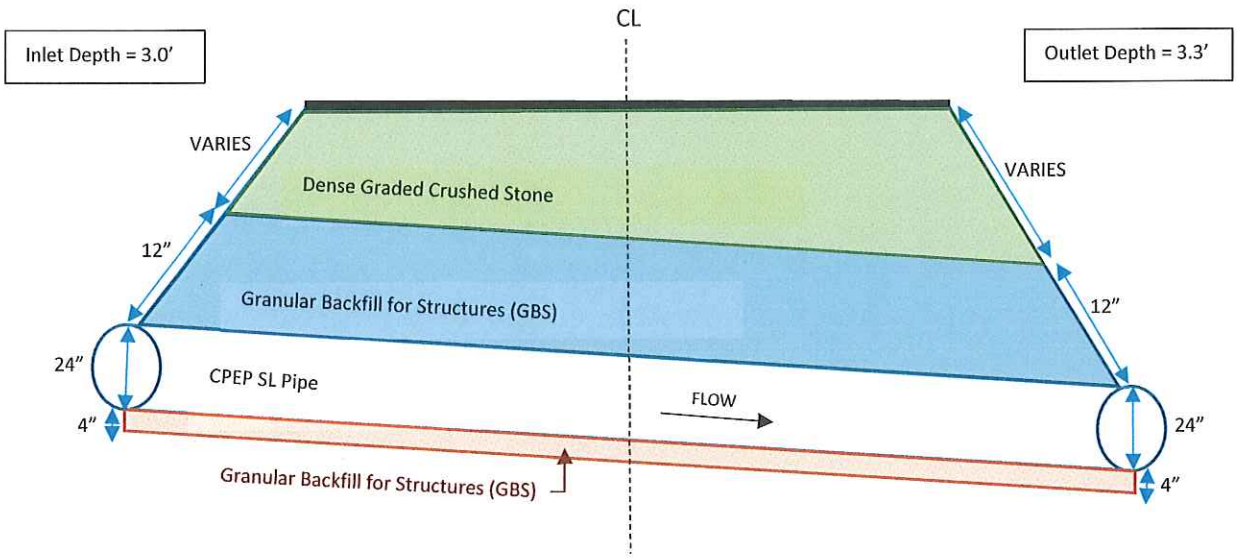
Site Notes:

Please note that there are overhead wires on the WB side of road. There is also a crossover wire close to the EB outlet end. It will be the contractor's responsibility to protect the utilities during construction.

A right of entry may be needed to do work on the EB outlet side of the culvert since it is very close to the property owners' building and farm operations.

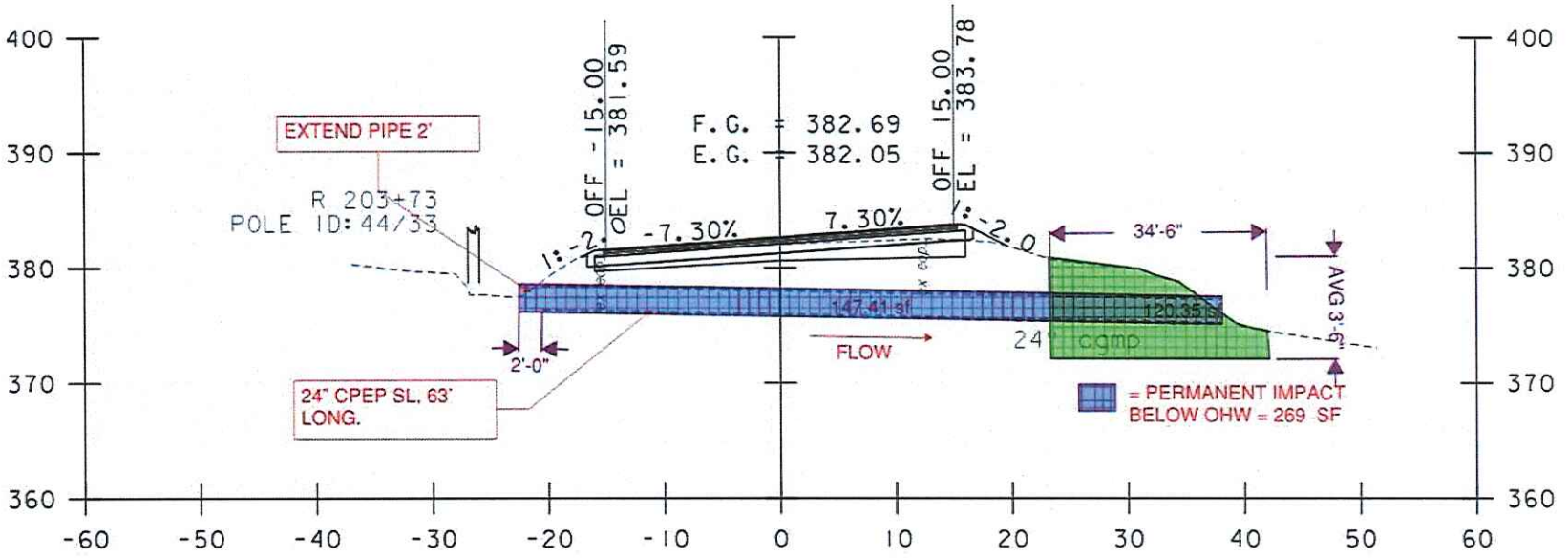
Cross Section:

PID 64454



Not to Scale

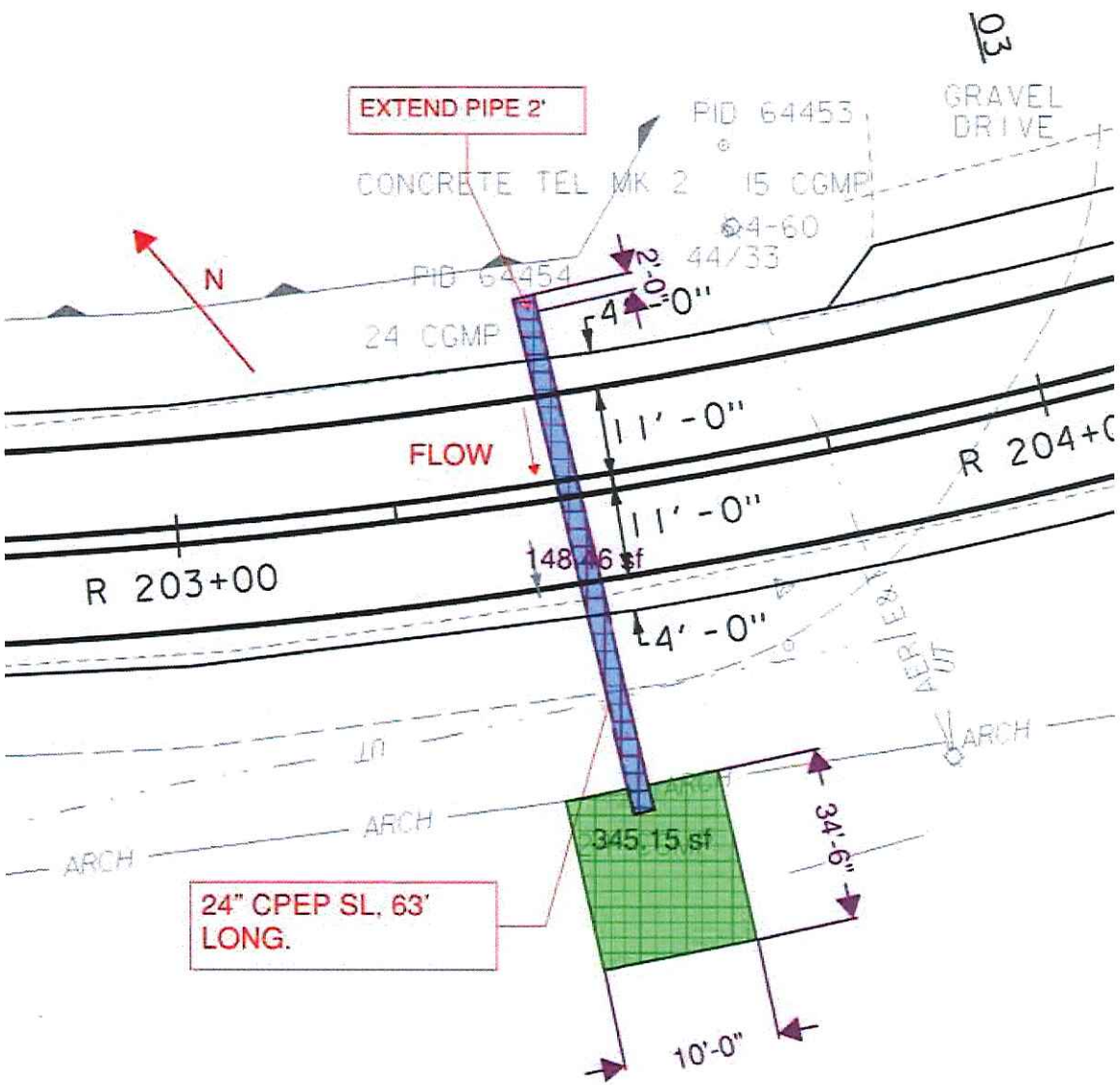
Note: The bedding of the pipe with GBS (4" below pipe and 12" over pipe) is more structurally important than the DGCS. Fully bed the pipe before putting in any DGCS



R 203+50

PID 64454 24" CGMP
US-2 MM 3.8 RICHMOND

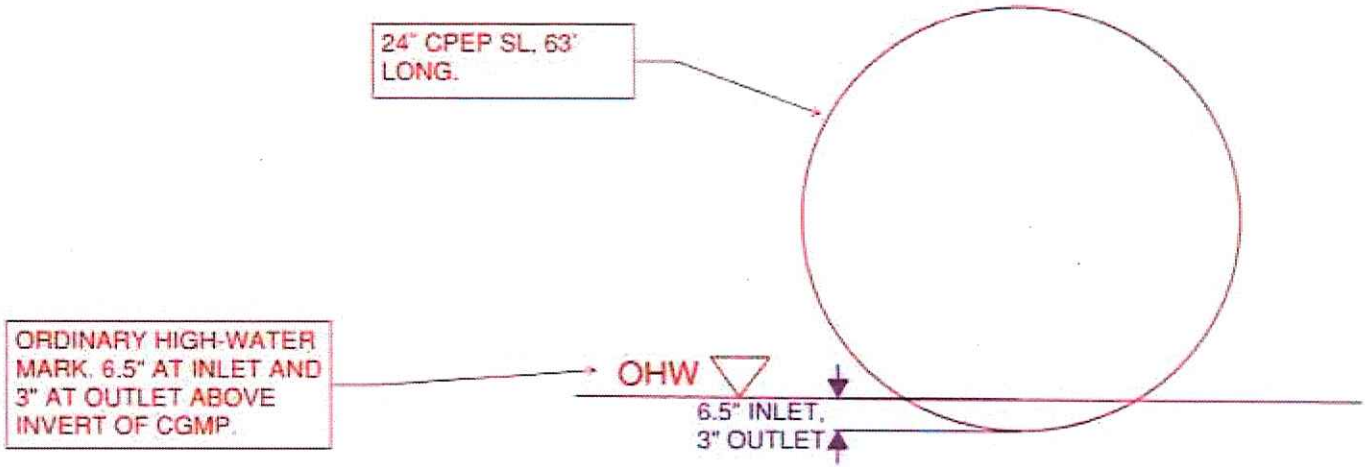
CROSS SECTION
MHG 08/20/2021
SHEET 1 OF 3



= PERMANENT IMPACT BELOW OHW = 296 SF

PID 64454 24" CGMP
US-2 MM 3.8 RICHMOND

PLAN VIEW
MHG 08/20/2021
SHEET 2 OF 3



*NOT TO SCALE

PID 64454 24" CGMP
US-2 MM 3.8 RICHMOND

CULVERT CROSS SECTION DETAIL
MHG 08/20/2021
SHEET 3 OF 3