



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF ABANDONED MINE LANDS AND RECLAMATION CONSTRUCTION DRAWINGS

AUGUST 2014

WVDEP PROJECT:

ENGINEER:

HOPEWELL CHURCH REFUSE & DRAINAGE
PRESTON COUNTY, WEST VIRGINIA

CTL CTL ENGINEERING OF WEST VIRGINIA, INC.
733 Fairmont Road Morgantown, WV 26501 510 C Street South Charleston, WV 25303
Phone: 304/292-1135 Fax: 304/296-9302 Phone: 304/746-1140 Fax: 304/746-1143
TESTING & CONSTRUCTION OBSERVATION * LABORATORY * ENVIRONMENTAL * MINING *
* GEOTECHNICAL * CIVIL & SITE PLANNING * SURVEYING & MAPPING *

GOVERNOR : EARL RAY TOMBLIN

CABINET SECRETARY: RANDY C. HUFFMAN

BID QUANTITIES				USGS	PRESTON COUNTY ROADS
ITEM NO.	DESCRIPTION	QUANTITY	UNIT		
1.0	MOBILIZATION/DEMObILIZATION (Shall not exceed 10%)	1	L.S.		
2.0	CONSTRUCTION LAYOUT (Shall not exceed 5%)	1	L.S.		
3.0	QUALITY CONTROL (Shall not exceed 3%)	1	L.S.		
4.1	SITE PREPARATION (Shall not exceed 10%)	1	L.S.		
4.2	ACCESS ROAD REHABILITATION	15,761	TON		
5.1	SEDIMENT CONTROL (SILT FENCE)	900	L.F.		
5.2	EROSION CONTROL (STRAW WATTLES)	670	L.F.		
5.3	STABILIZED CONSTRUCTION ENTRANCE	1	EACH		
6.0	REVEGETATION	2.9	PLAN VIEW AC.		
7.1	RIP RAP CHANNEL (2' BOTTOM)	865	L.F.		
7.2	GRouted RIP RAP CHANNEL (2' BOTTOM)	25	L.F.		
7.3	24" HDPE CULVERT	40	L.F.		
7.4	15" HDPE CULVERT	40	L.F.		
7.5	LOW WATER CROSSING	1	EACH		
8.0	UNCLASSIFIED EXCAVATION	2,676	C.Y.		
12.1	PILOT HOLES	788	L.F.		
12.2	16" DIAMETER STEEL CASING	788	L.F.		
12.3	12" DIAMETER SDR-35 PVC PIPE	788	L.F.		
12.4	SODA ASH BRIQUETTES	35	EACH		

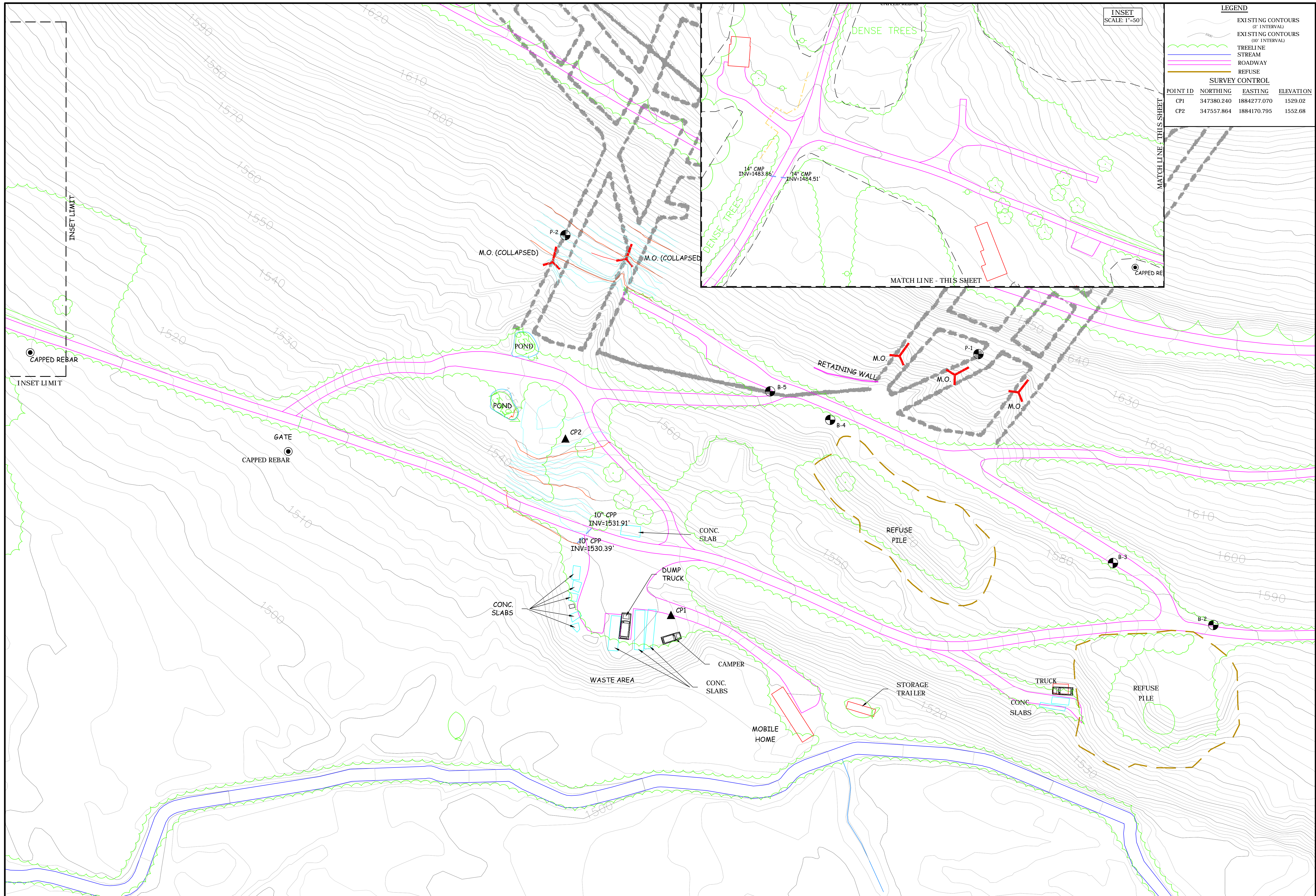
PATRICK E. GALLAGHER
WV P.E. 9297

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WEST VIRGINIA MISS UTILITY
1-800-245-4848

THE LOCATION OF ALL UTILITIES (ABOVE OR BELOW GROUND) SHOWN ON THIS DRAWING ARE APPROXIMATE & WERE OBTAINED FROM OBSERVATIONS AT THE SITE AND/OR FROM THE UTILITY OWNERS. CTL ENGINEERING OF WV, INC. DOES NOT GUARANTEE THAT LOCATIONS SHOWN ARE CORRECT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE LOCATIONS OF EXISTING UTILITIES (ABOVE OR BELOW GROUND) & TO NOTIFY THE RESPECTIVE UTILITY OWNERS BEFORE BEGINNING ANY CONSTRUCTION.



INSET
SCALE: 1"=50'

LEGEND

- EXISTING CONTOURS (2' INTERVAL)
- EXISTING CONTOURS (10' INTERVAL)
- TREELINE
- STREAM
- ROADWAY
- REFUSE

SURVEY CONTROL

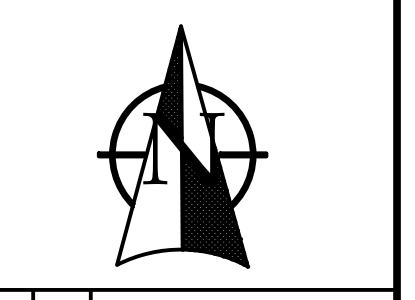
POINT ID	NORTHING	EASTING	ELEVATION
CP1	347380.240	1884277.070	1529.02
CP2	347557.864	1884170.795	1552.68

CTL Engineering of West Virginia, Inc.
 610 S. Street
 S. Charleston, WV 25303
 Phone: 304/746-1140
 Fax: 304/746-1143

233 Farmway Blvd
 Morgantown, WV 26501
 Phone: 304/292-1135
 Fax: 304/296-9302

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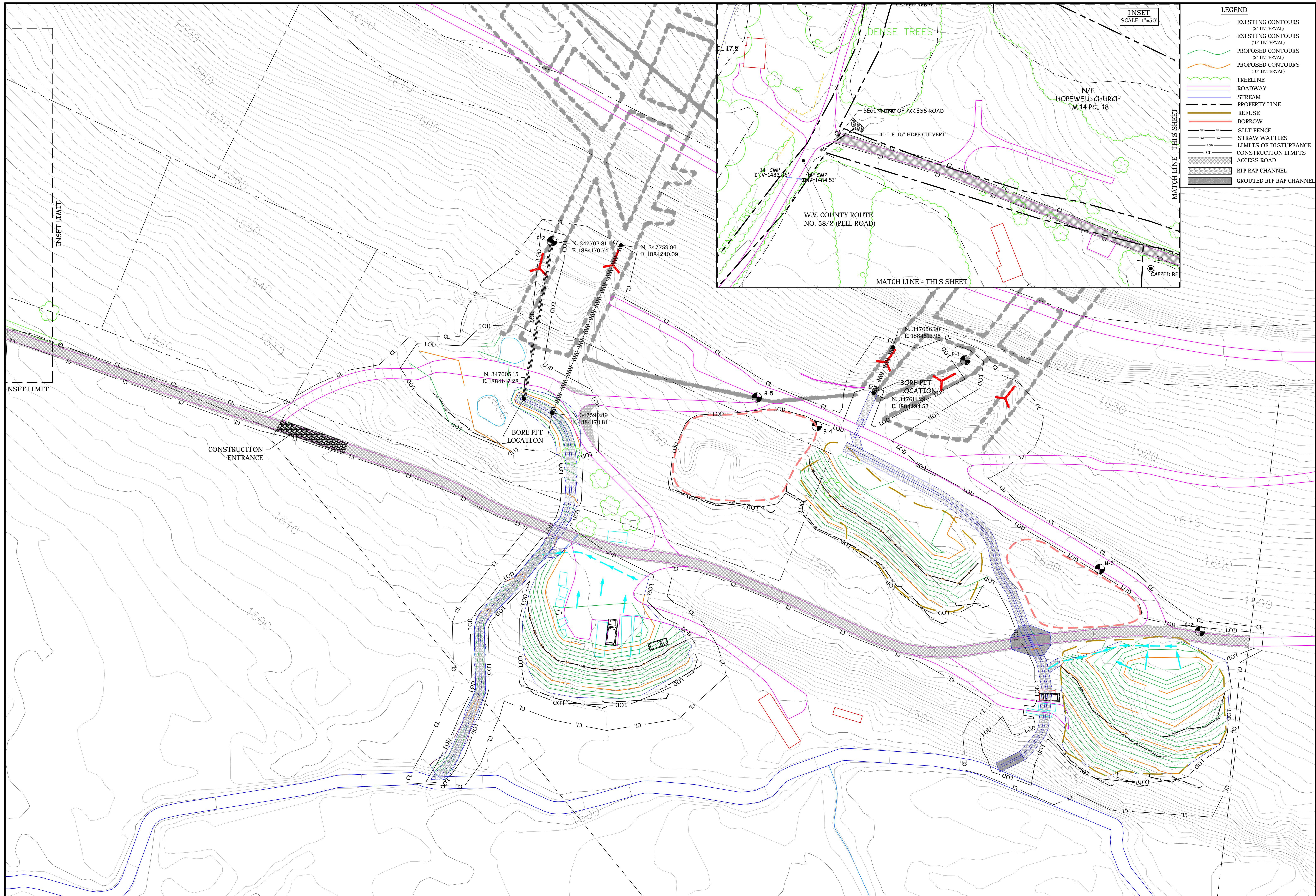
HOPEWELL CHURCH REFUSE & DRAINAGE
 WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
 101 CAMBRIDGE PLACE BRIDGEPORT, WV
EXISTING CONDITIONS WITH MINE MAP
 PRESTON COUNTY WEST VIRGINIA



REVISED	Approved
Date	Description

PATRICK E. GALLAGHER
 P.E. # 9297

Drawn By: JFS
 Approved By: TAD
 Date: 07/01/2013
 Scale: 1" = 40'
 Project No. 13100047MOR
 Drawing Name PROPOSED 12-13-2013
 Sheet No. 1



INSET
SCALE: 1"=50'

- LEGEND**
- EXISTING CONTOURS (2' INTERVAL)
 - EXISTING CONTOURS (10' INTERVAL)
 - PROPOSED CONTOURS (2' INTERVAL)
 - PROPOSED CONTOURS (10' INTERVAL)
 - TREELINE
 - ROADWAY
 - STREAM
 - PROPERTY LINE
 - REFUSE
 - BORROW
 - SILT FENCE
 - STRAW WATTLES
 - LIMITS OF DISTURBANCE
 - CONSTRUCTION LIMITS
 - ACCESS ROAD
 - RIP RAP CHANNEL
 - GROUTED RIP RAP CHANNEL



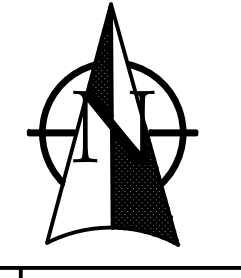
CTL Engineering of West Virginia, Inc.
 233 Farmington Road
 Morgantown, WV 26501
 Phone: 304.292.1135
 Fax: 304.296.9302

610 E. Street
 S. Charleston, WV 25303
 Phone: 304.746.1140
 Fax: 304.746.1143

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 101 CAMBRIDGE PLACE BRIDGEPORT, WV

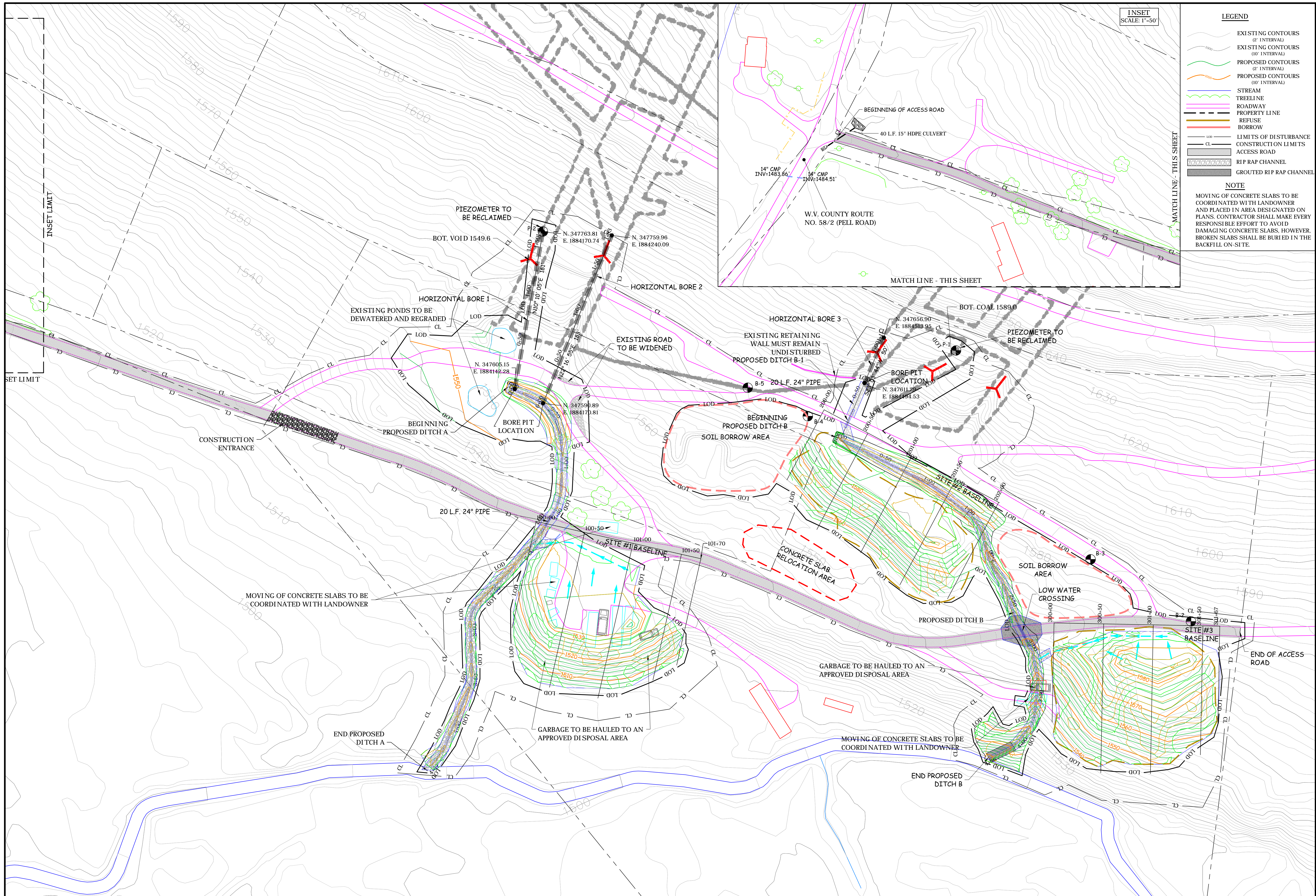
SEDIMENT & EROSION CONTROL PLAN
 PRESTON COUNTY WEST VIRGINIA



REVISONS	Date	Description	Approved

PATRICK E. GALLAGHER
 P.E. # 9297

Drawn By: JFS
 Approved By: TAD
 Date: 08/22/2014
 Scale: 1" = 40'
 Project No. 13100047MOR
 Drawing Name PROPOSED 12-13-2013
 Sheet No. 2



INSET
SCALE: 1"=50'

- LEGEND**
- EXISTING CONTOURS (2' INTERVAL)
 - EXISTING CONTOURS (10' INTERVAL)
 - PROPOSED CONTOURS (2' INTERVAL)
 - PROPOSED CONTOURS (10' INTERVAL)
 - STREAM
 - TREELINE
 - PROPERTY LINE
 - REFUSE
 - BORROW
 - LIMITS OF DISTURBANCE
 - CONSTRUCTION LIMITS
 - ACCESS ROAD
 - RIP RAP CHANNEL
 - GROUTED RIP RAP CHANNEL

NOTE
MOVING OF CONCRETE SLABS TO BE COORDINATED WITH LANDOWNER AND PLACED IN AREA DESIGNATED ON PLANS. CONTRACTOR SHALL MAKE EVERY RESPONSIBLE EFFORT TO AVOID DAMAGING CONCRETE SLABS. HOWEVER, BROKEN SLABS SHALL BE BURIED IN THE BACKFILL ON-SITE.



CTL Engineering of West Virginia, Inc.
 233 Farmway Blvd. S. Charleston, WV 25303
 Phone: 304/292-1135 Fax: 304/746-1143
 810 S. Street S. Charleston, WV 25303
 Phone: 304/746-1143 Fax: 304/746-1143
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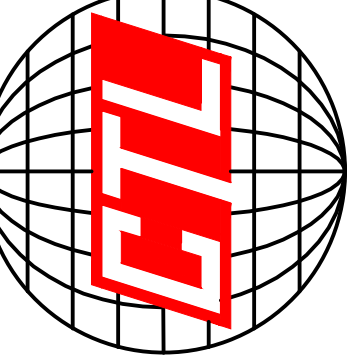
HOPEWELL CHURCH REFUSE & DRAINAGE
 WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
 101 CAMBRIDGE PLACE BRIDGEPORT, WV
RECLAMATION PLAN
 PRESTON COUNTY WEST VIRGINIA



REVISED	Description	Approved

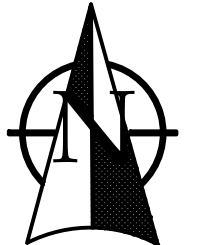
PATRICK E. GALLAGHER
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 Drawing Name PROPOSED 12-13-2013
 Sheet No. 3



CTL Engineering of West Virginia, Inc.
 233 Farmway Blvd. S. Charleston, WV 25303
 Phone: 304/746-1140
 Fax: 304/746-1143
 810 E. Street, Martinsburg, WV 26001
 Phone: 304/292-1135
 Fax: 304/296-9302
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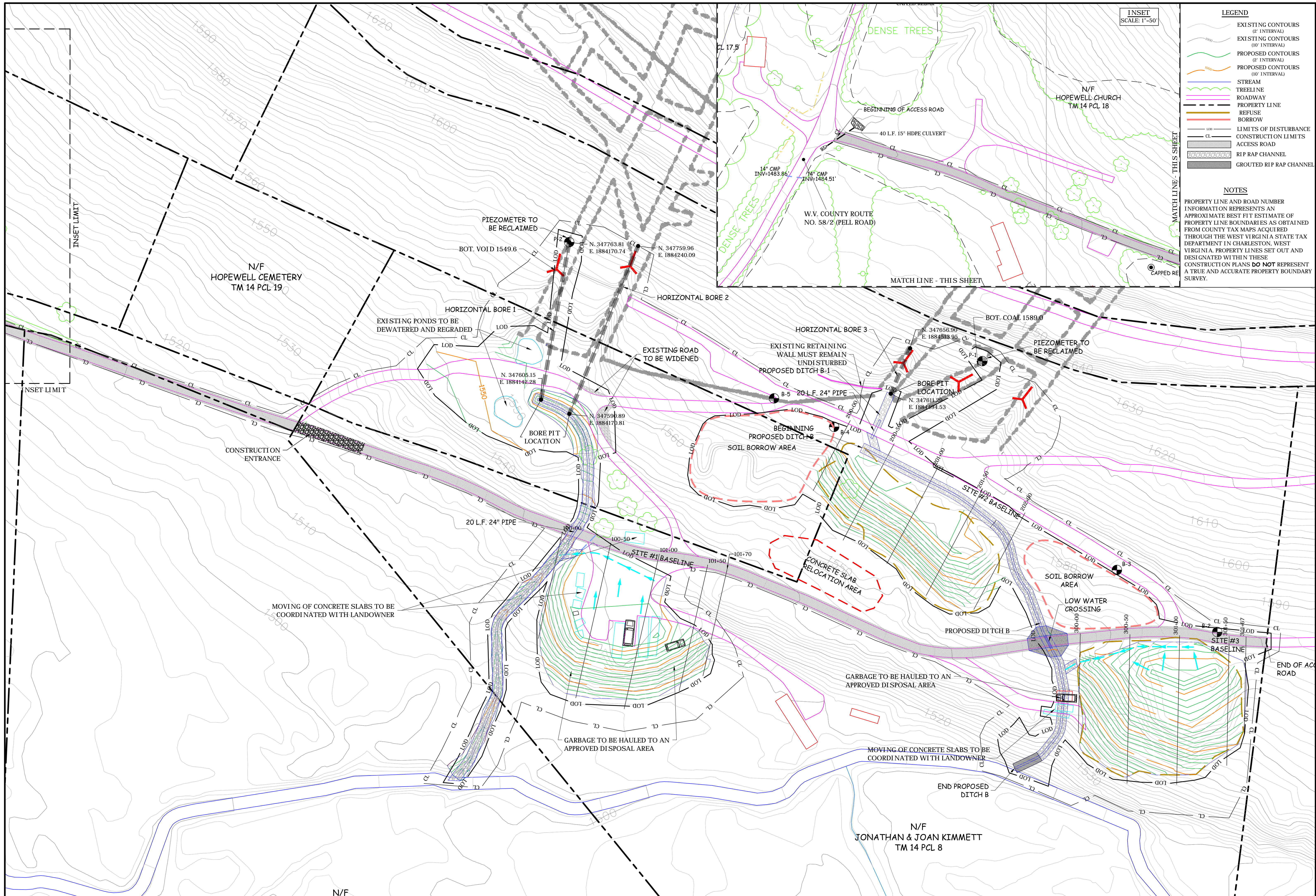
HOPEWELL CHURCH REFUSE & DRAINAGE
 WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
 101 CAMBRIDGE PLACE BRIDGEPORT, WV
TAX MAP OVERLAY
 PRESTON COUNTY WEST VIRGINIA



REVISED	Description	Date
Approved		

PATRICK E. GALLAGHER
 P.E. # 9297

Drawn By: JFS
 Approved By: TAD
 Date: 08/22/2014
 Scale: 1" = 40'
 Project No. 13100047MOR
 Drawing Name PROPOSED 12-13-2013
 Sheet No. 4



INSET
 SCALE: 1"=50'

- LEGEND**
- EXISTING CONTOURS (2' INTERVAL)
 - EXISTING CONTOURS (10' INTERVAL)
 - PROPOSED CONTOURS (2' INTERVAL)
 - PROPOSED CONTOURS (10' INTERVAL)
 - STREAM
 - TREELINE
 - ROADWAY
 - PROPERTY LINE
 - REFUSE
 - BORROW
 - LIMITS OF DISTURBANCE
 - CONSTRUCTION LIMITS
 - ACCESS ROAD
 - RIP RAP CHANNEL
 - GRouted RIP RAP CHANNEL
- NOTES**
- PROPERTY LINE AND ROAD NUMBER INFORMATION REPRESENTS AN APPROXIMATE BEST FIT ESTIMATE OF PROPERTY LINE BOUNDARIES AS OBTAINED FROM COUNTY TAX MAPS ACQUIRED THROUGH THE WEST VIRGINIA STATE TAX DEPARTMENT IN CHARLESTON, WEST VIRGINIA. PROPERTY LINES SET OUT AND DESIGNATED WITHIN THESE CONSTRUCTION PLANS DO NOT REPRESENT A TRUE AND ACCURATE PROPERTY BOUNDARY SURVEY.

MATCH LINE - THIS SHEET

MATCH LINE - THIS SHEET

N/F

LEGEND
 --- EXISTING
 --- PROPOSED

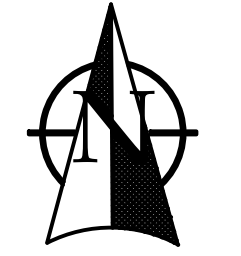
NOTE: ALL BORINGS WILL CONSIST OF DUAL RUNS SPACED 4 TO 6 FEET APART.



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 510 S. Street, Charleston, WV 25303
 733 Farmway Blvd., Morgantown, WV 26501
 Phone: 304/746-1140
 Phone: 304/292-1135
 Fax: 304/746-1143
 Fax: 304/296-9302

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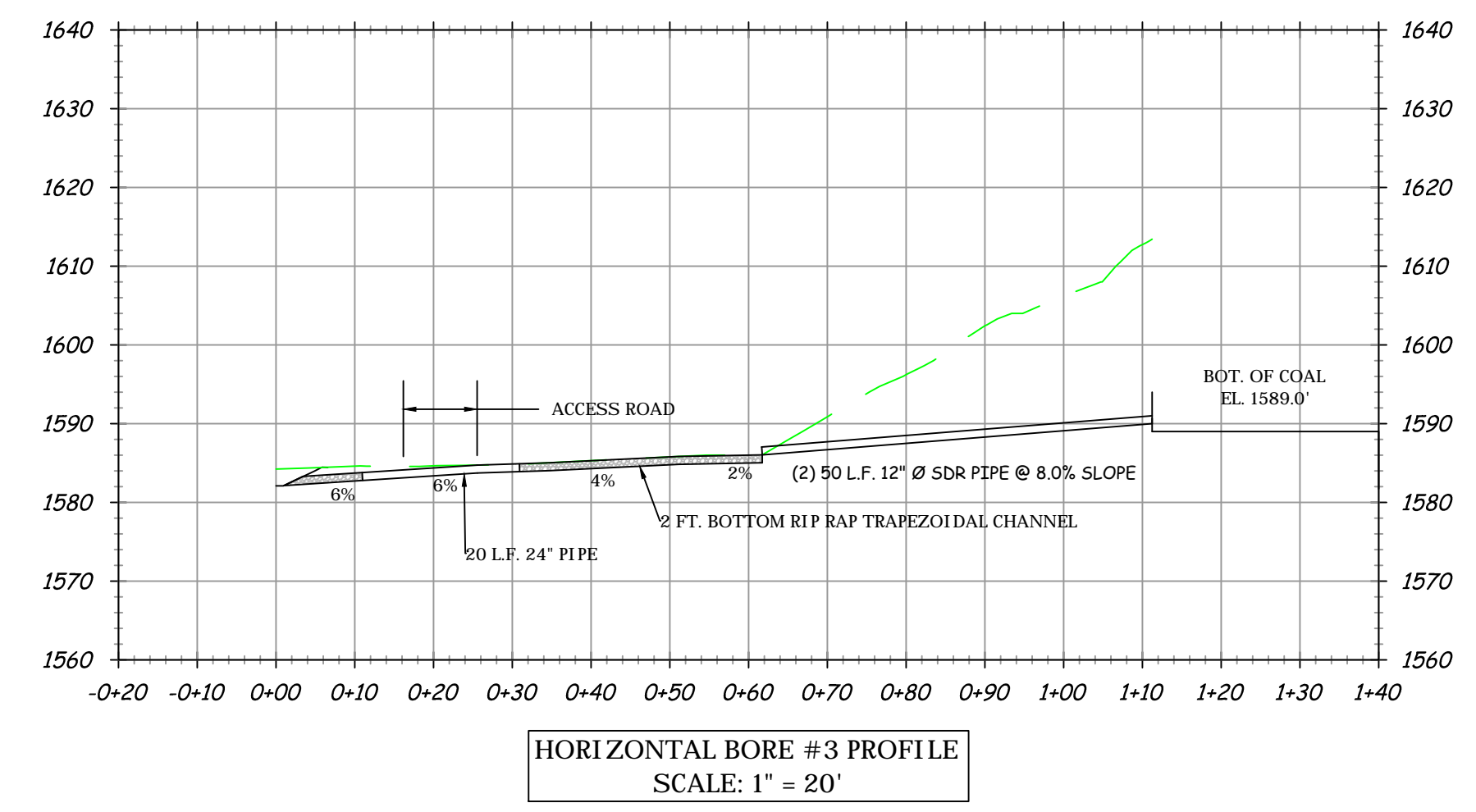
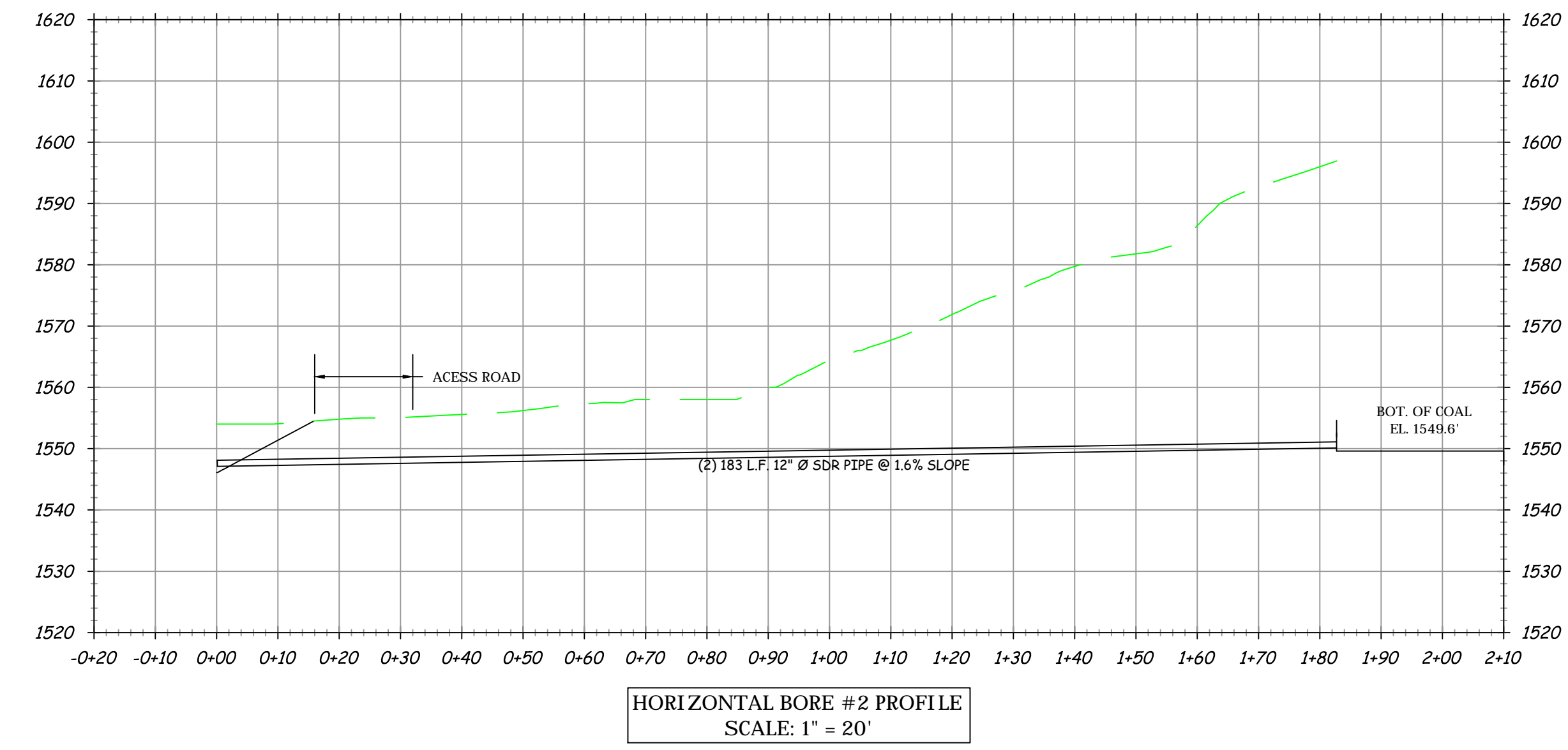
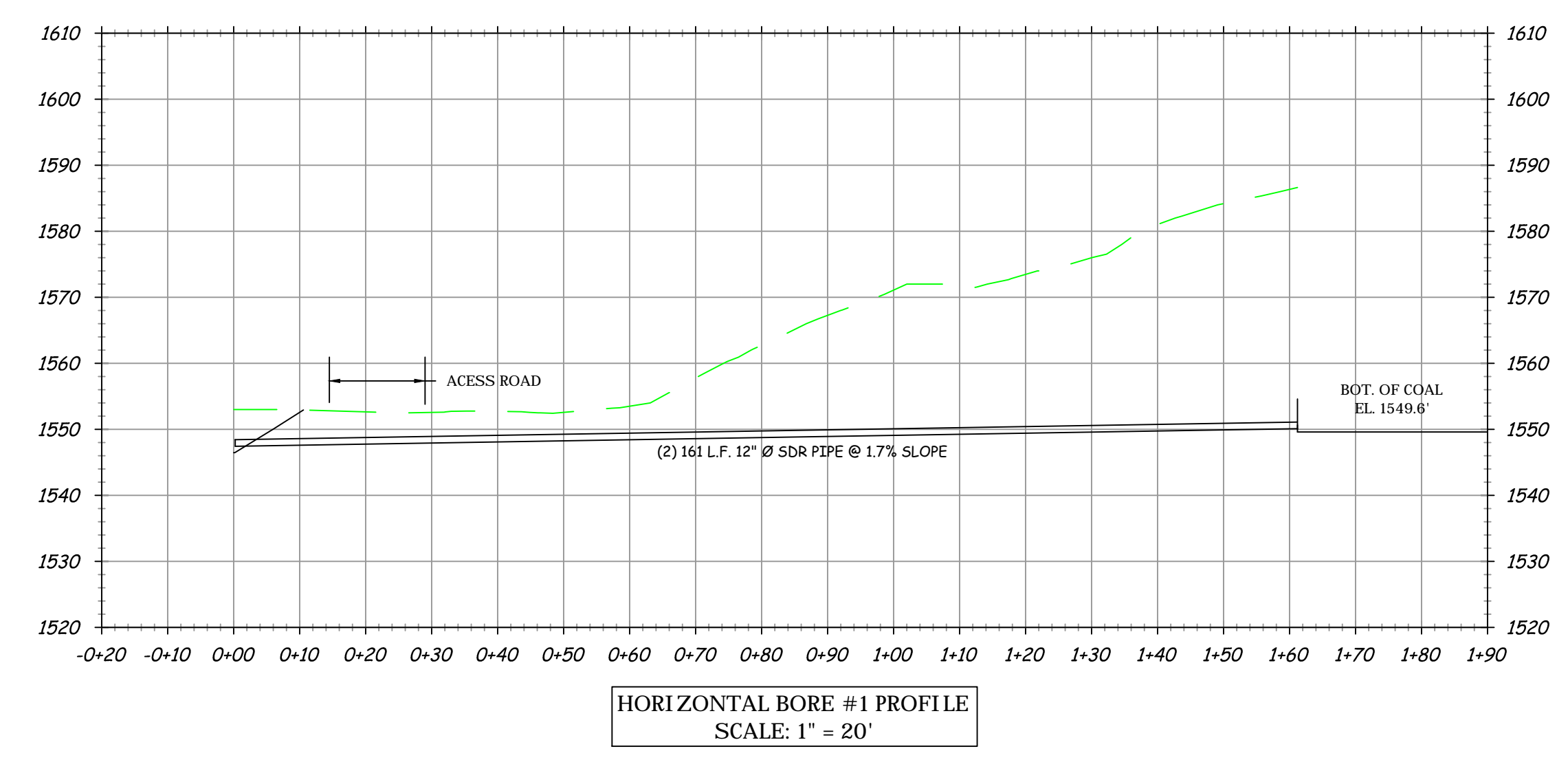
HOPWELL CHURCH REFUSE & DRAINAGE
 WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
 101 CAMBRIDGE PLACE BRIDGEPORT, WV
HORIZONTAL BORING PROFILES
 PRESTON COUNTY WEST VIRGINIA

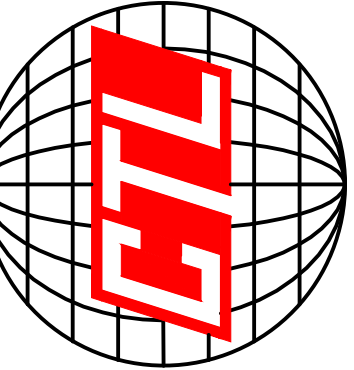


REVISIONS	
Date	Description
Approved	

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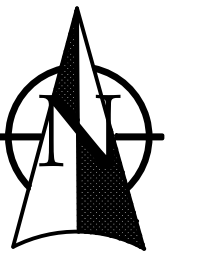
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 Scale: 1" = 20'
 Project No. 13100047MOR
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 510 E. Street
 S. Charleston, WV 25303
 Phone: 304/746-1140
 Fax: 304/746-1143
 733 Farmway Blvd.
 Martinsburg, WV 25801
 Phone: 304/292-1135
 Fax: 304/296-9302
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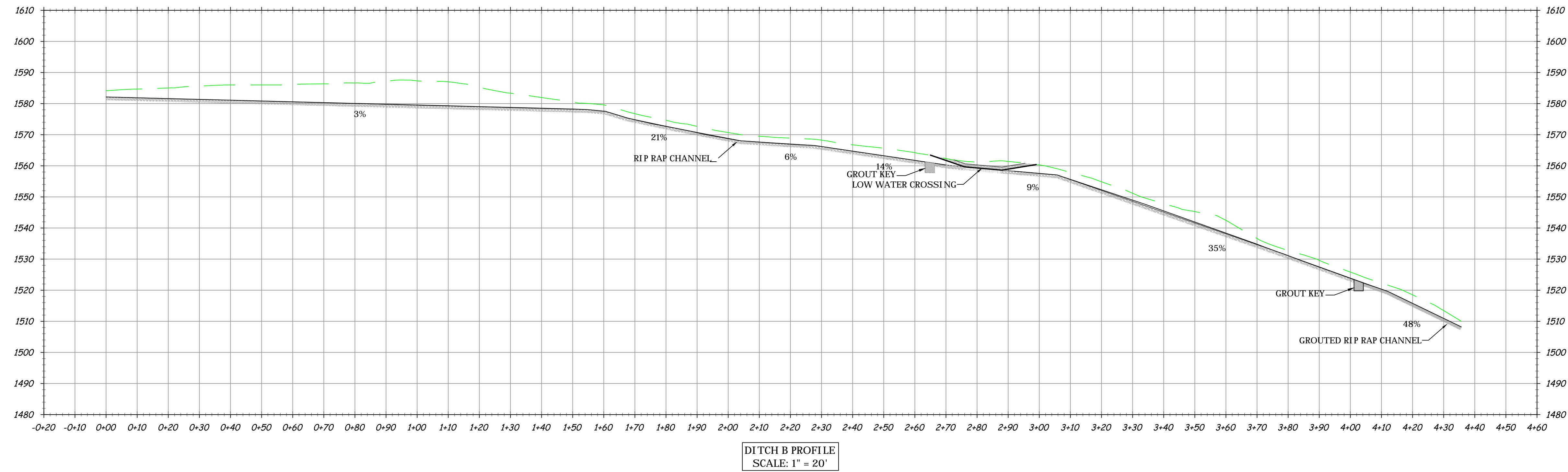
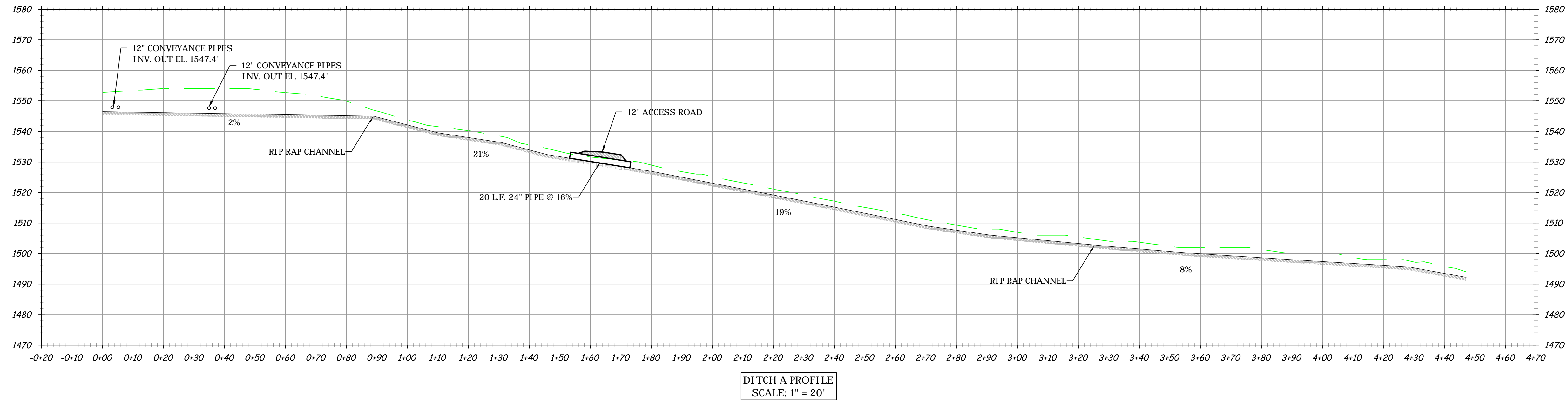
HOPEWELL CHURCH REFUSE & DRAINAGE
 WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
 101 CAMBRIDGE PLACE BRIDGEPORT, WV
PROPOSED DITCH PROFILES
 PRESTON COUNTY WEST VIRGINIA



REVISIONS	Approved
Description	
Date	

PATRICK E. GALLAGHER
 P.E. # 9297

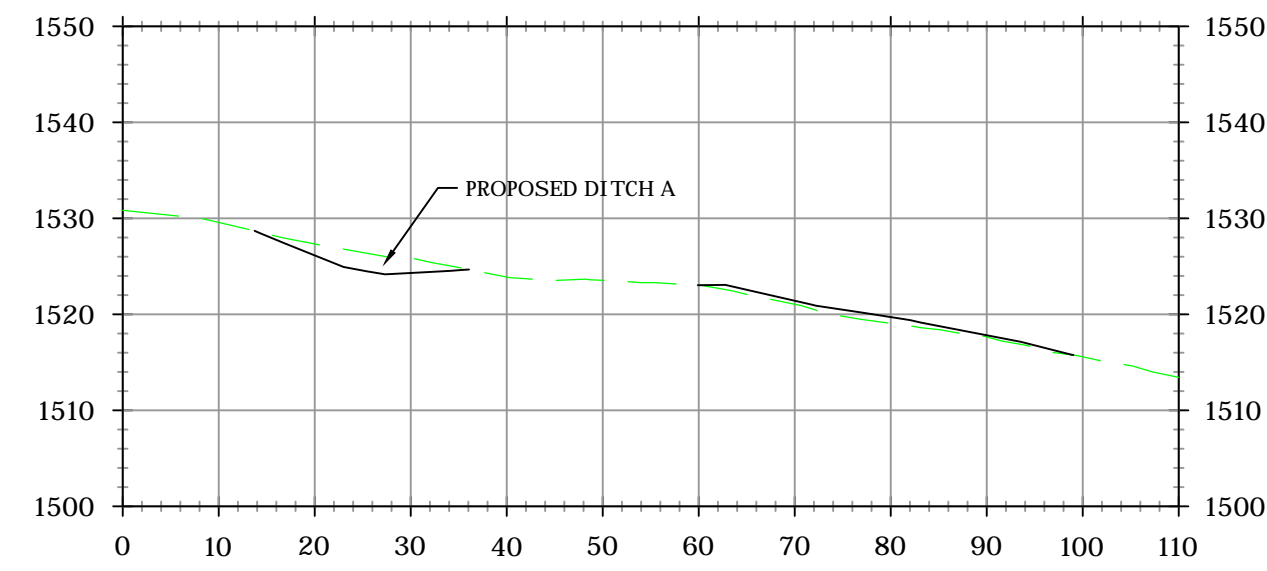
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 Approved By: TAD
 Date: 10/15/14
 Scale: 1" = 20'
 Project No. 13100047MOR
 Drawing Name PROPOSED 12-13-2013
 Sheet No. 6



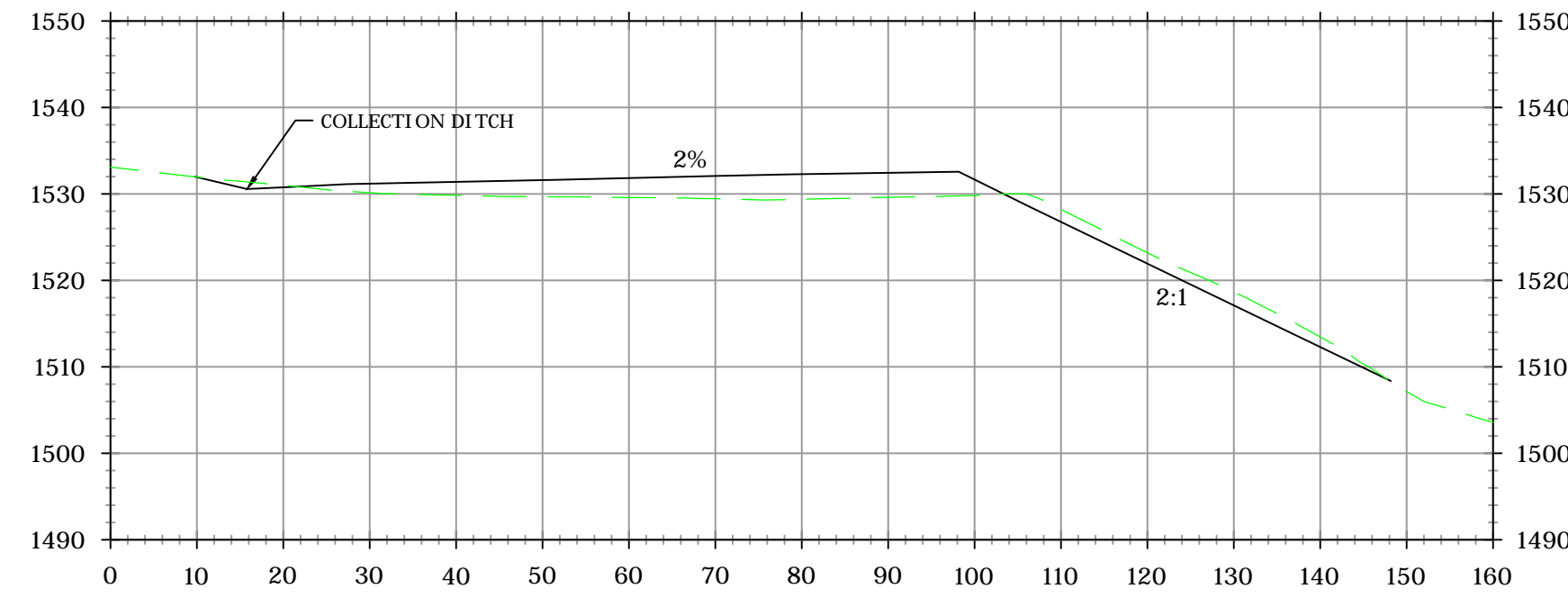
NOTE: SEE HORIZONTAL BORE #3 PROFILE FOR DITCH B-1 INFORMATION.

LEGEND

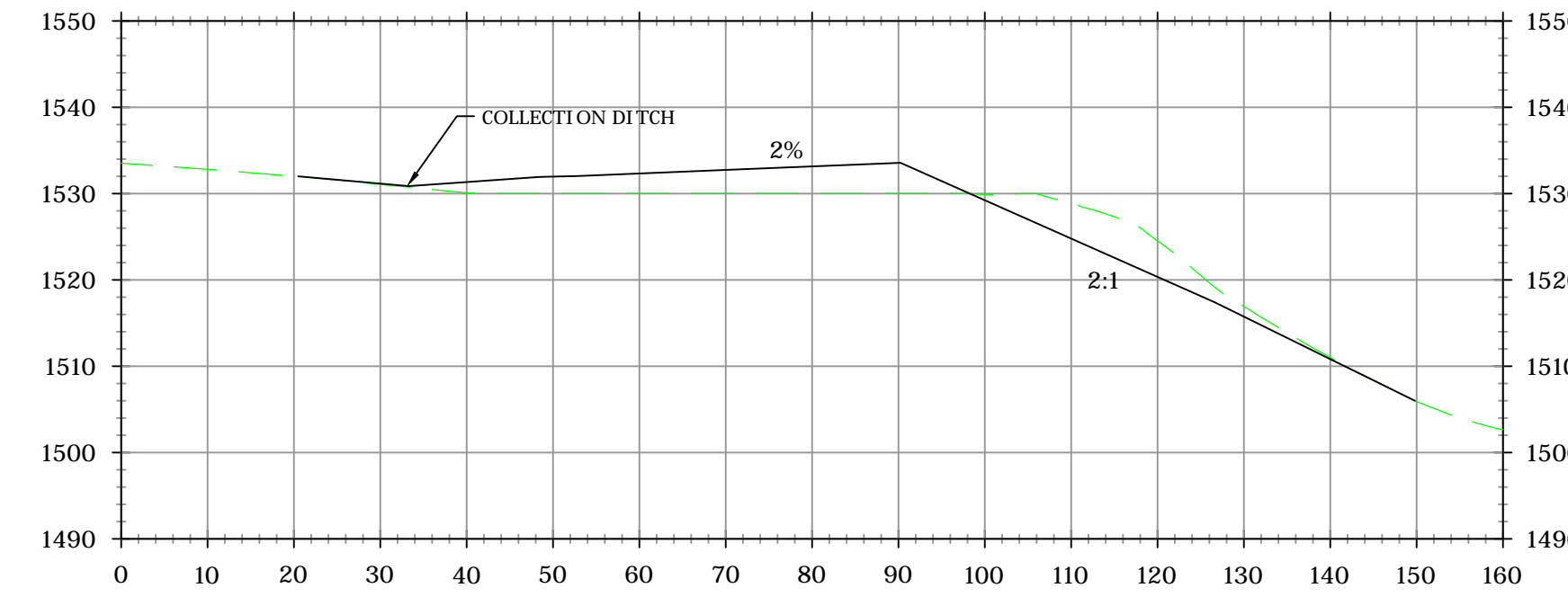
	EXISTING
	PROPOSED



SITE #1-STA. =100+00
SCALE: 1" = 20'



SITE #1-STA. =100+50
SCALE: 1" = 20'

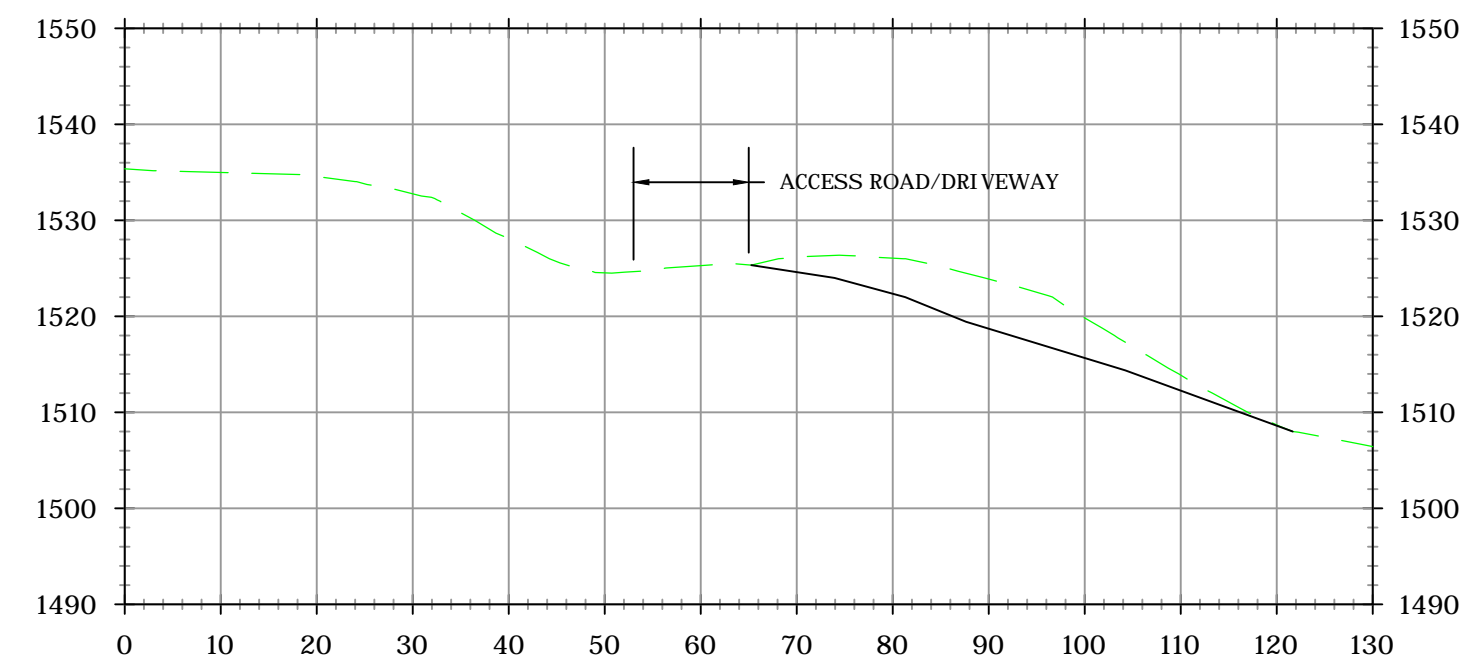


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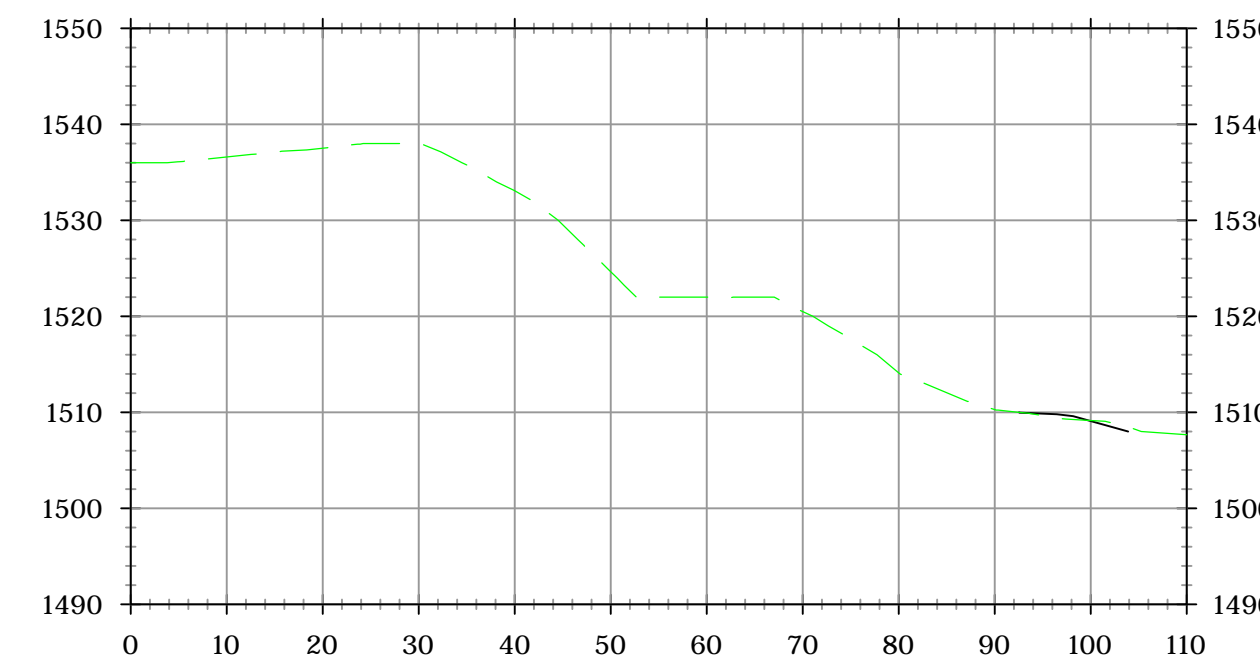
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--- EXISTING

— PROPOSED

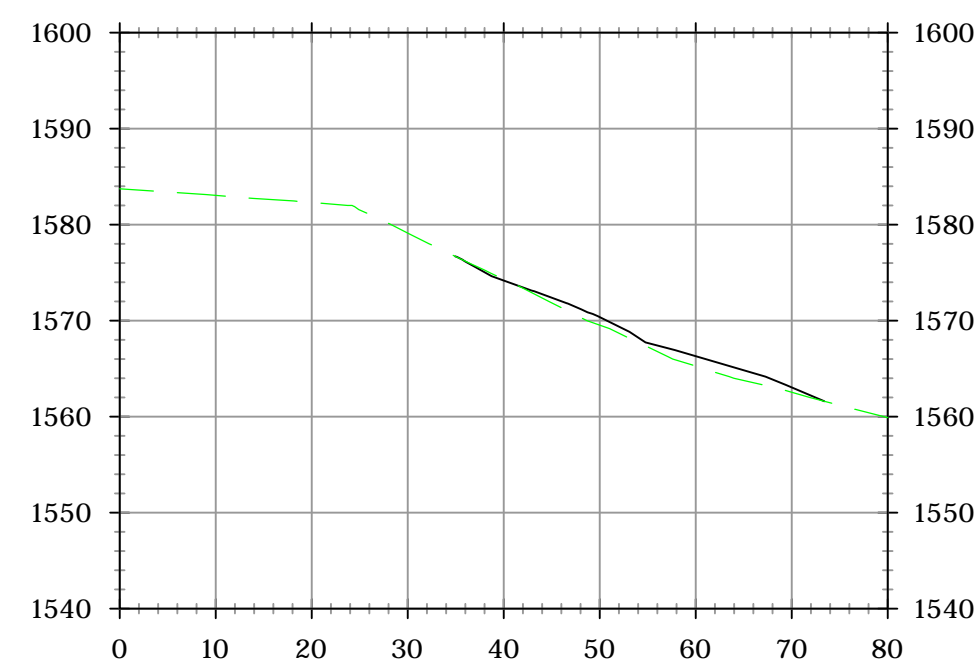


SITE #1-STA. =101+50
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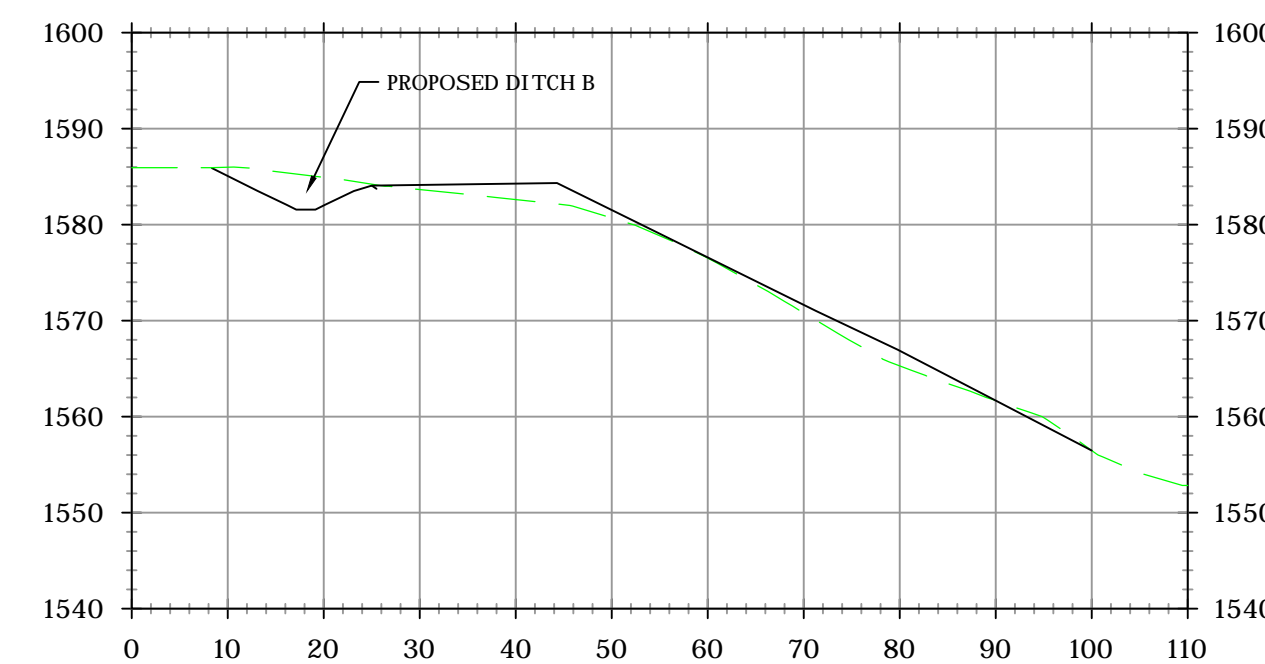


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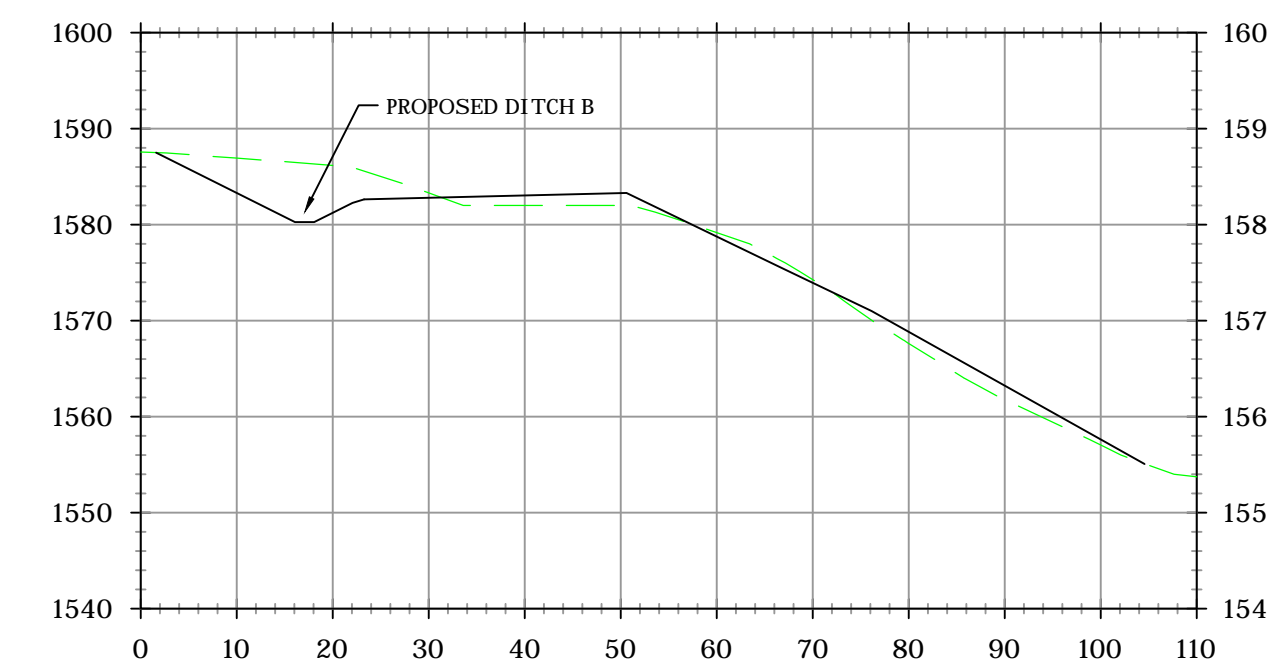
QUANTITIES: SITE #1
CUT: 528 CU. YDS.
FILL: 694 CU. YDS.
NET FILL: 166 CU. YDS.



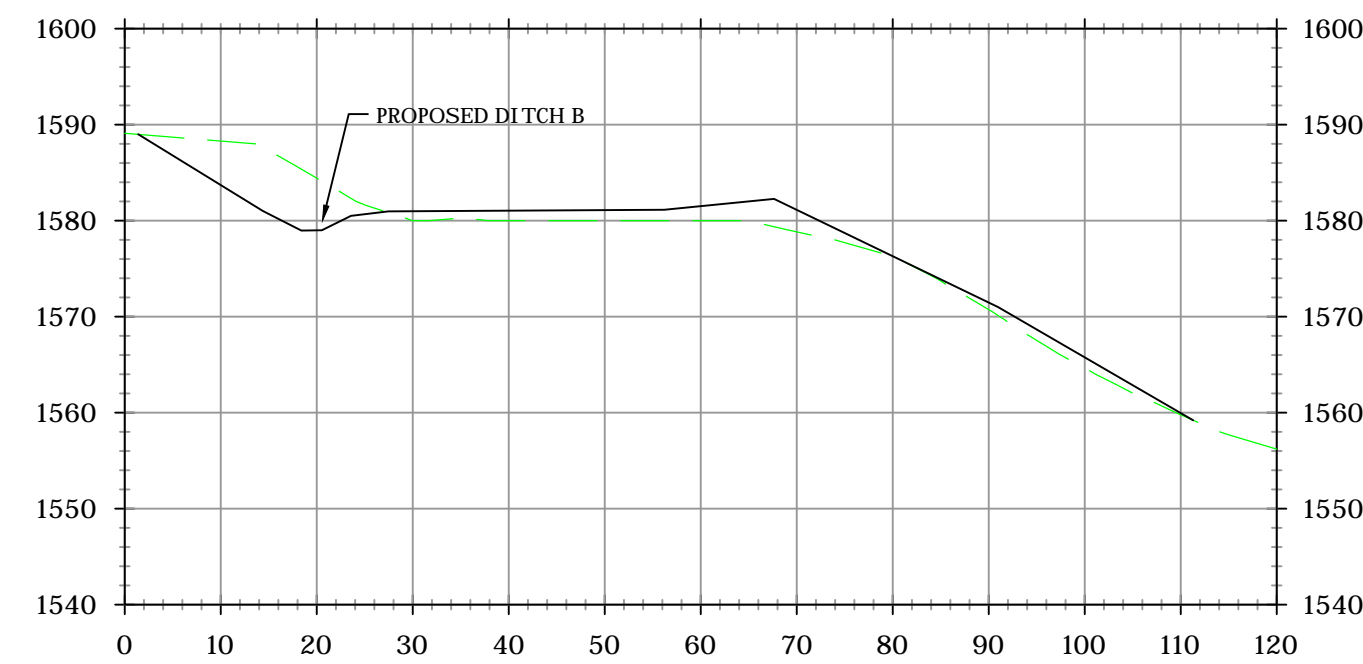
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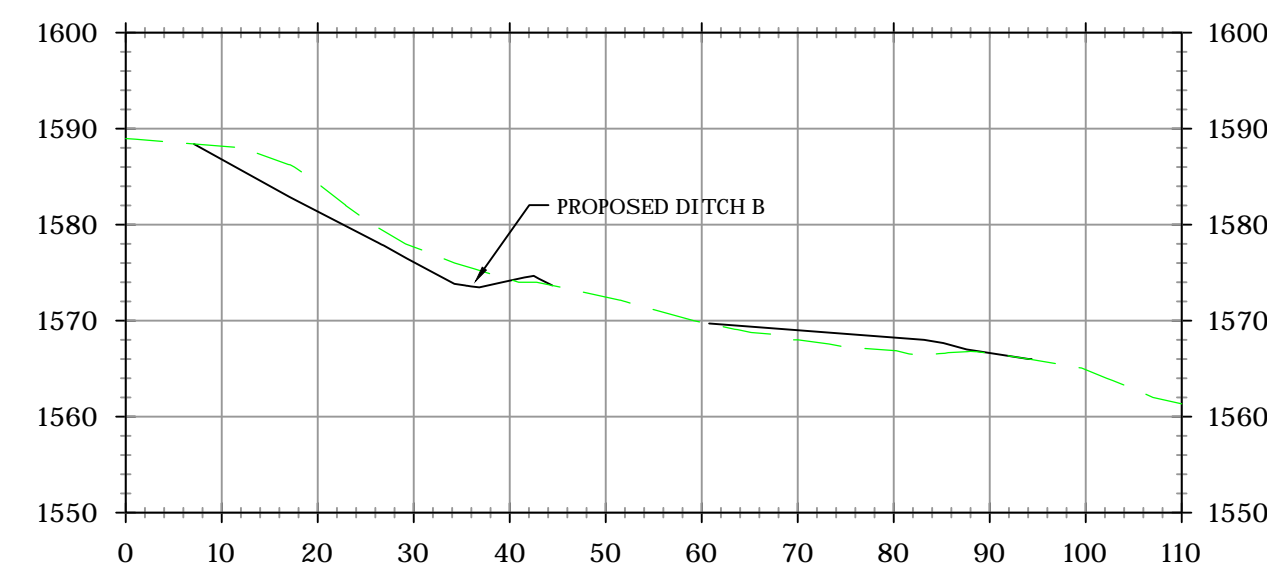
SITE #2-STA. =200+50
SCALE: 1" = 20'



SITE #2-STA. =201+00
SCALE: 1" = 20'



SITE #2-STA. =201+50
SCALE: 1" = 20'



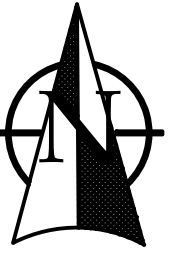
SITE #2-STA. =202+00
SCALE: 1" = 20'

QUANTITIES: SITE #2
CUT: 132 CU. YDS.
FILL: 413 CU. YDS.
NET FILL: 281 CU. YDS.



CTL Engineering of West Virginia, Inc.
 510 E. Street, Charleston, WV 25303
 733 Farmway Blvd., Morgantown, WV 26501
 Phone: 304/292-1135 Fax: 304/746-1140
 Phone: 304/296-9302 Fax: 304/746-1143
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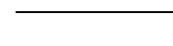
HOPEWELL CHURCH REFUSE & DRAINAGE
 WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
 101 CAMBRIDGE PLACE BRIDGEPORT, WV
PROPOSED SITE SECTIONS
 PRESTON COUNTY WEST VIRGINIA



REVISIONS	Approved
Description	
Date	

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 P.E. # 9297

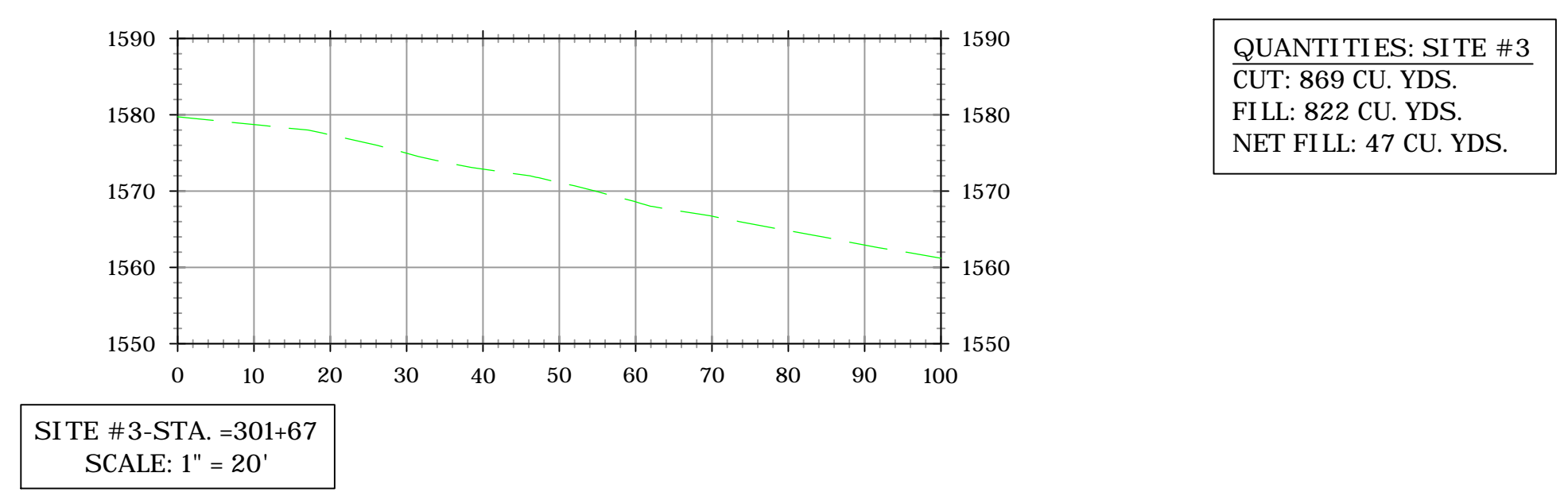
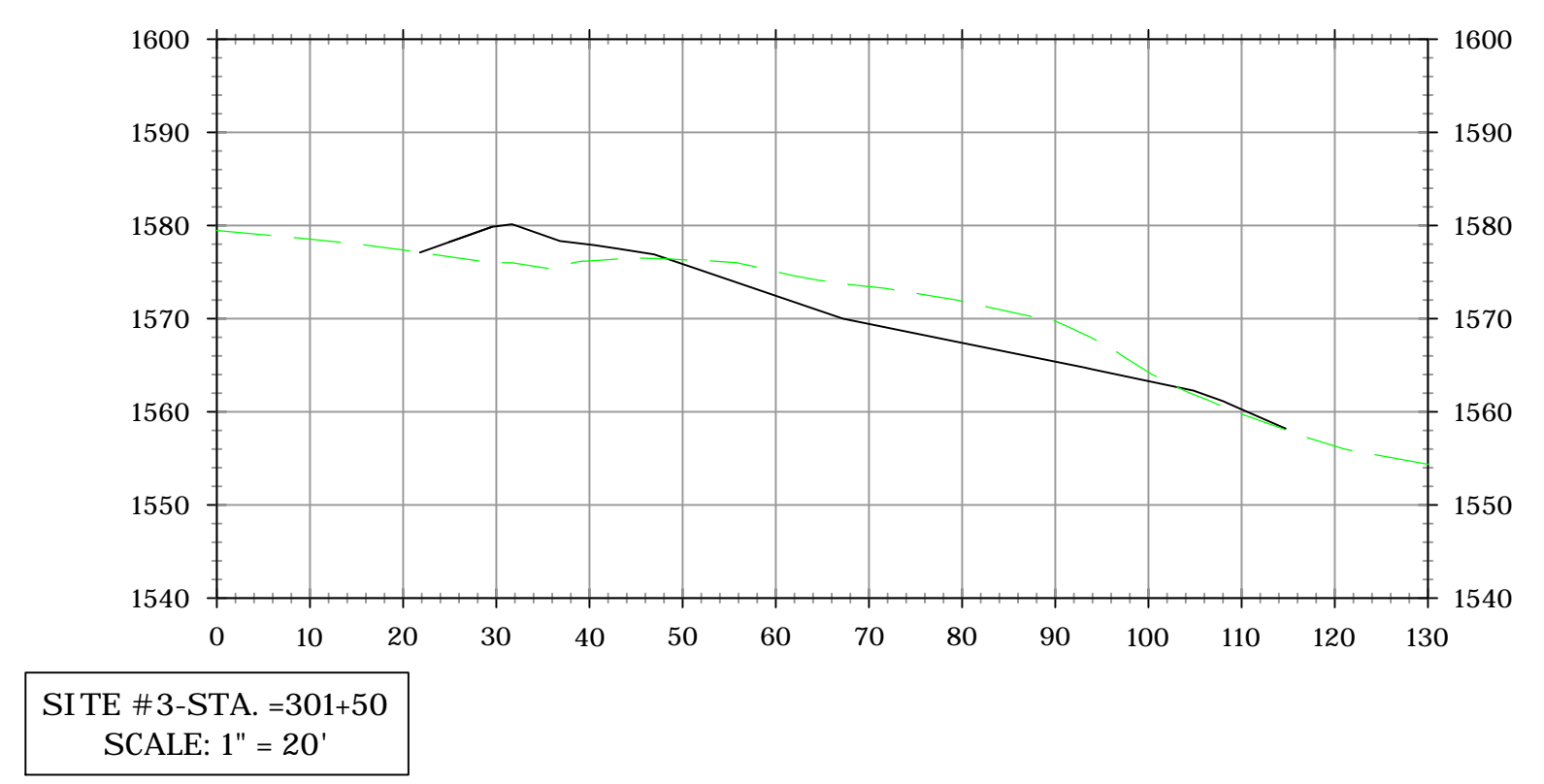
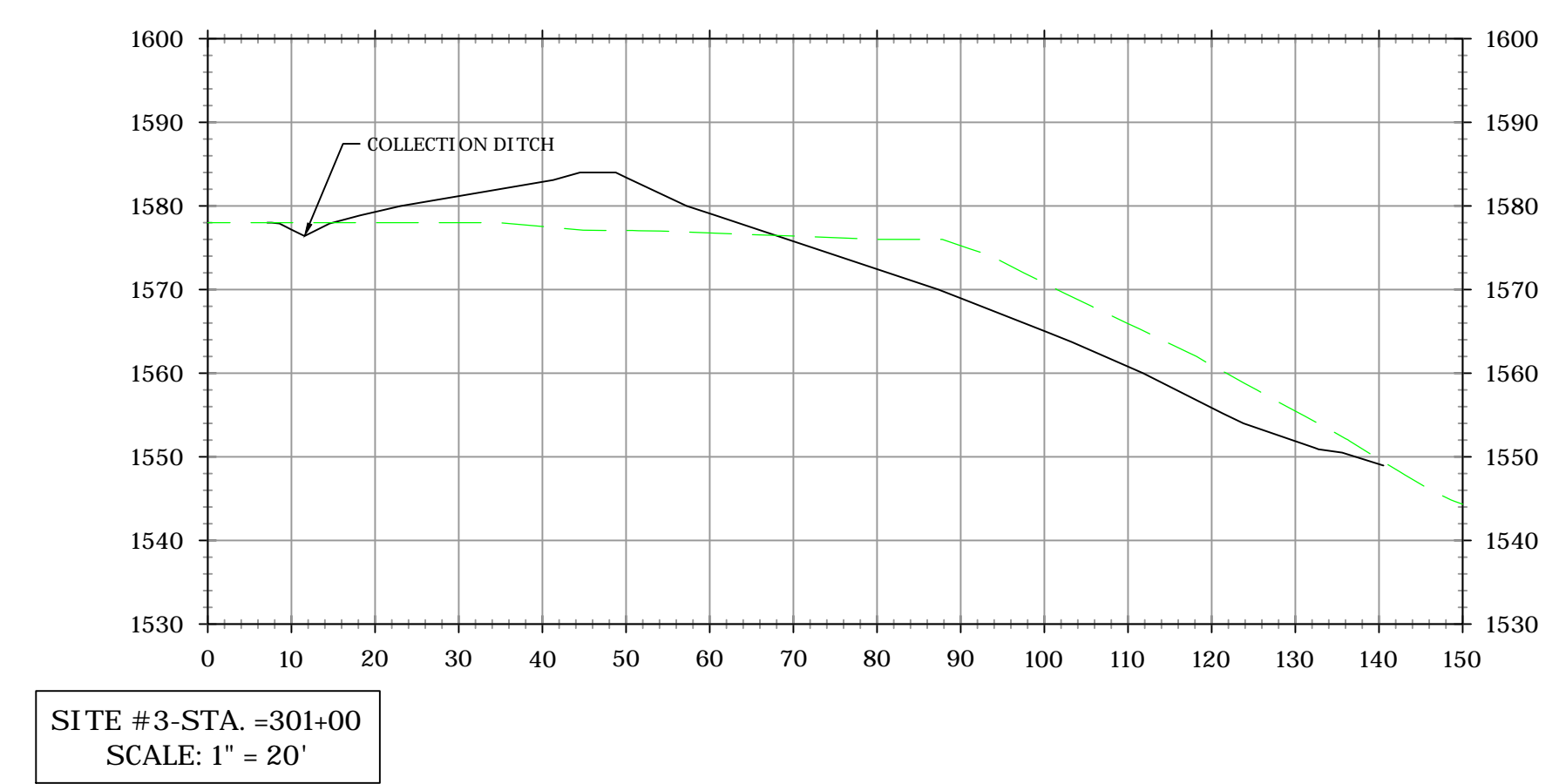
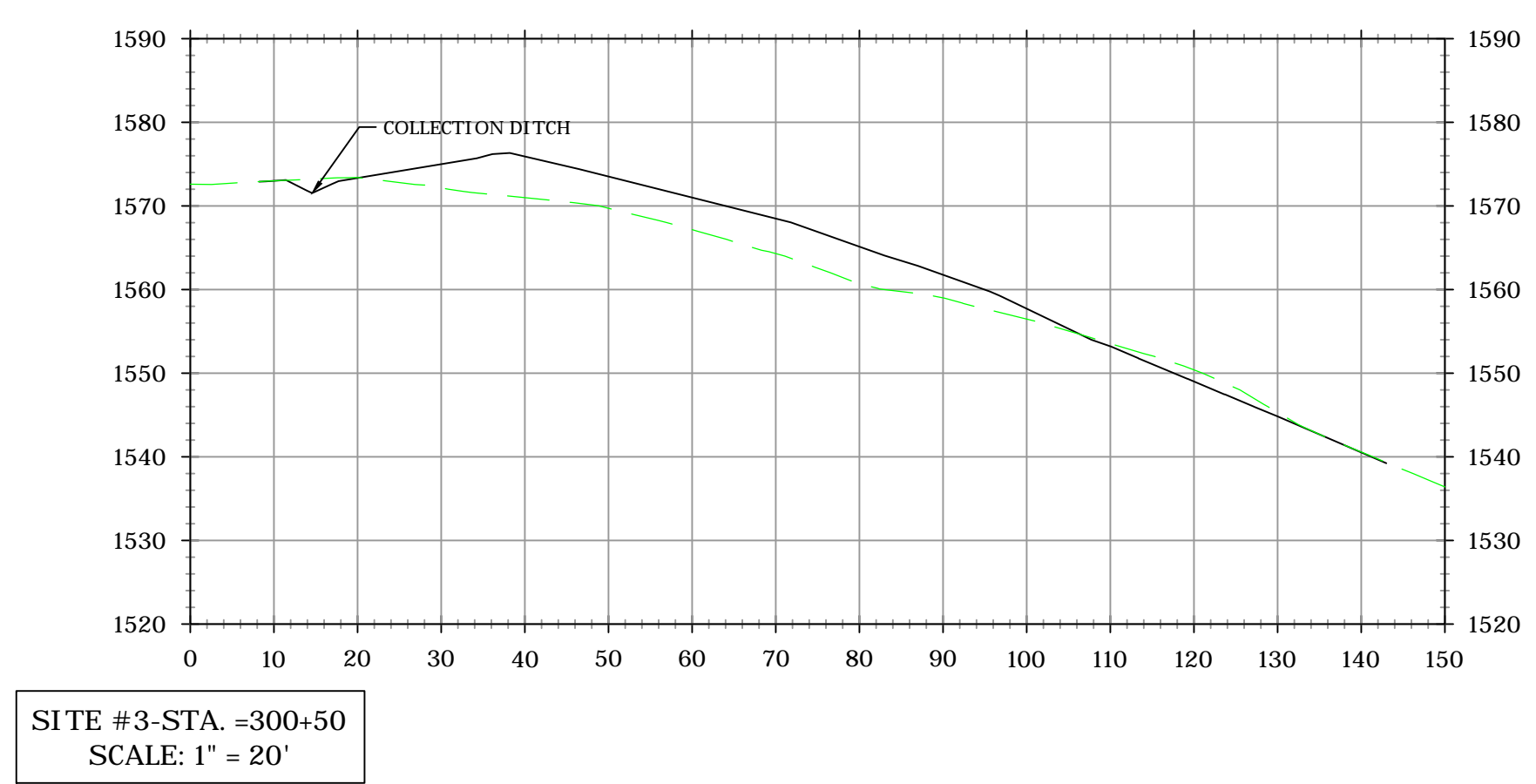
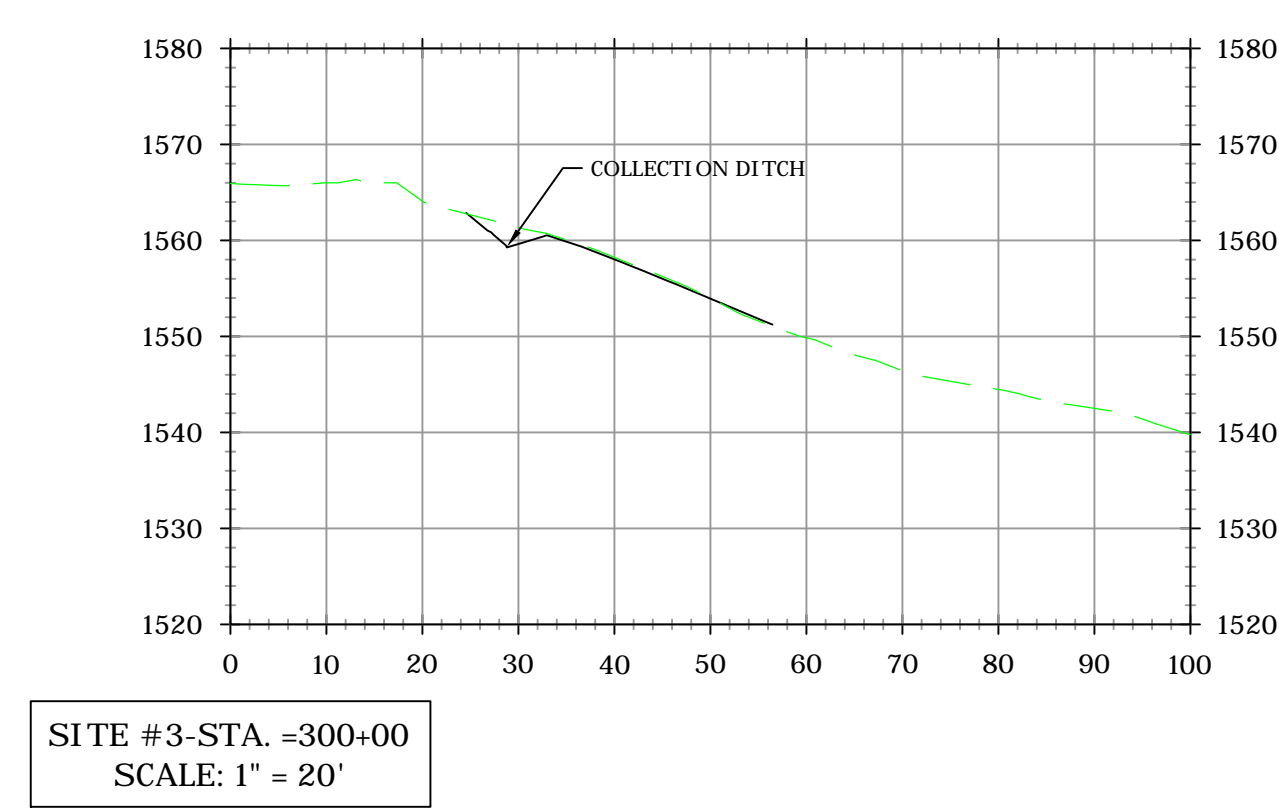
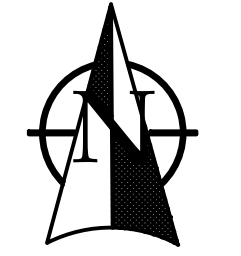
Drawn By: JFS
 Approved By: TAD
 Date: 07/01/2013
 Scale: 1" = 20'
 Project No. 13100047MOR
 Drawing Name PROPOSED 12-13-2013
 Sheet No. 7

LEGEND	
	EXISTING
	PROPOSED



CTL Engineering of West Virginia, Inc.
 510 S. Street, Charleston, WV 25303
 733 Farmway Road, Morgantown, WV 26501
 Phone: 304/746-1140
 Phone: 304/292-1135
 Fax: 304/746-1143
 Fax: 304/296-5932
 CTL & SITE PLANNING • SURVEYING & MAPPING • ENVIRONMENTAL • MINING • GEOTECHNICAL TESTING & CONSTRUCTION LABORATORY

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PROPOSED SITE SECTIONS
 PRESTON COUNTY WEST VIRGINIA

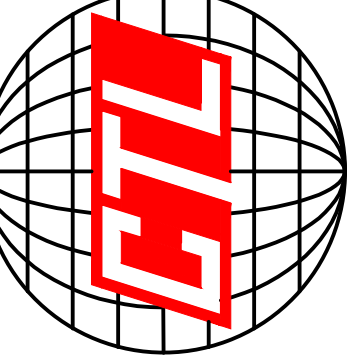


QUANTITIES: SITE #3
 CUT: 869 CU. YDS.
 FILL: 822 CU. YDS.
 NET FILL: 47 CU. YDS.

REVISIONS	Approved
	Description
Date	

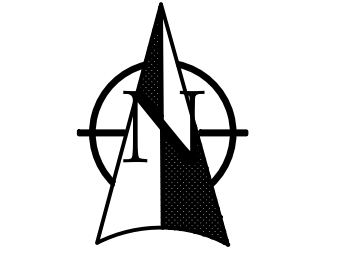
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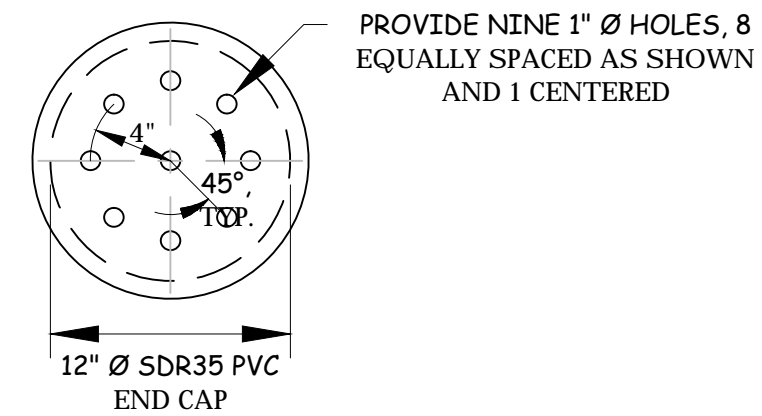
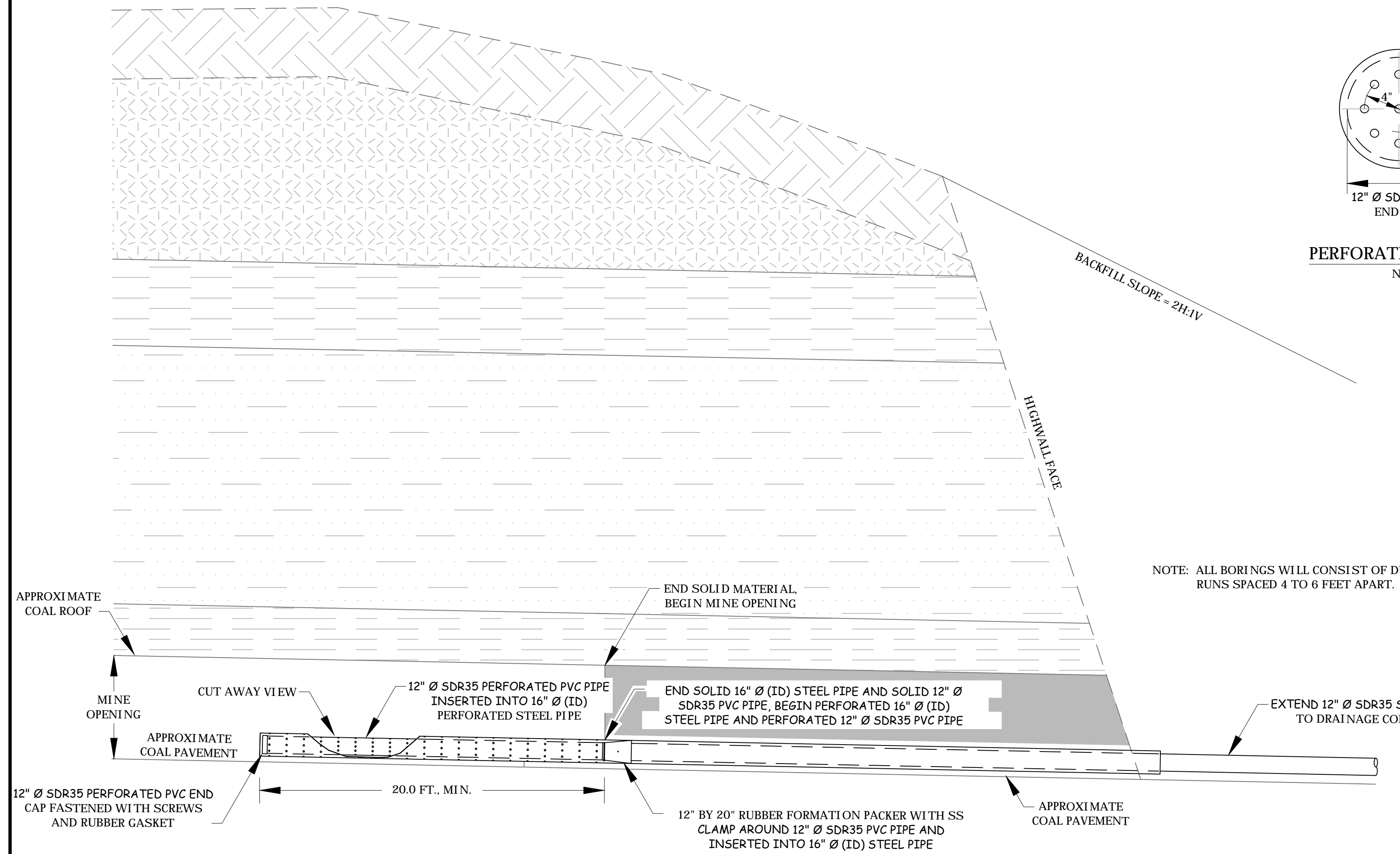
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HOPEWELL CHURCH REFUSE & DRAINAGE
 WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
 101 CAMBRIDGE PLACE, BRIDGEPORT, WV 26330
DETAIL SHEET
 PRESTON COUNTY, WEST VIRGINIA

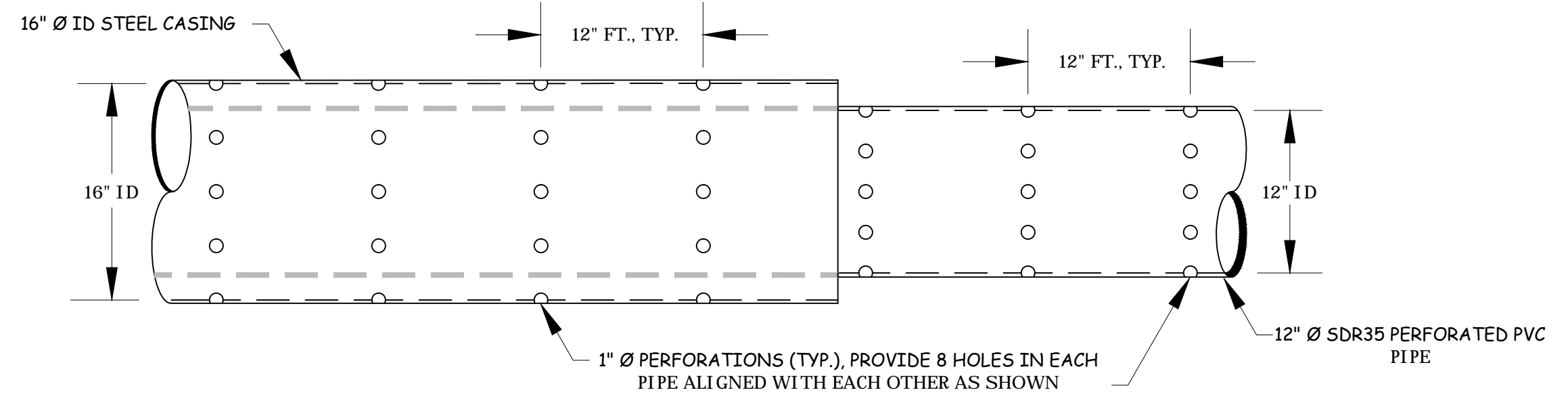


REVISED	Approved
Description	
Date	

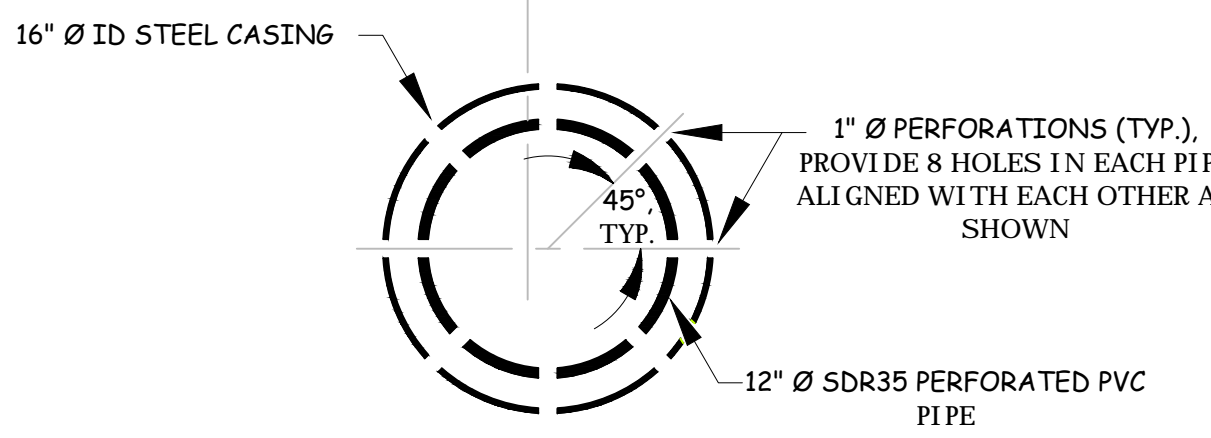
Drawn By: **HDC**
 Approved By: **PEG**
 Date: **10/15/14**
 Scale: **N.T.S.**
 Project No. **13100047MOR**
 Drawing Name **Cover Sheet_Details**
 Sheet No. **9**



PERFORATED END CAP
N.T.S.

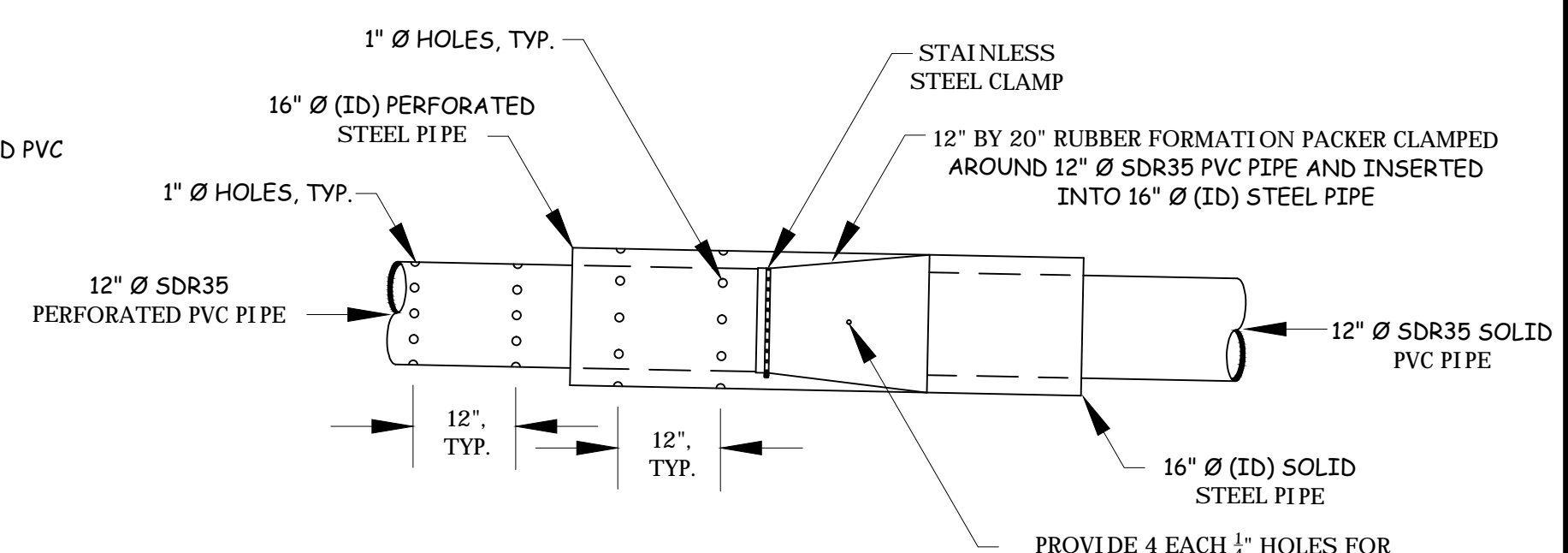


BORING PIPE LONGITUDINAL VIEW, TYP.

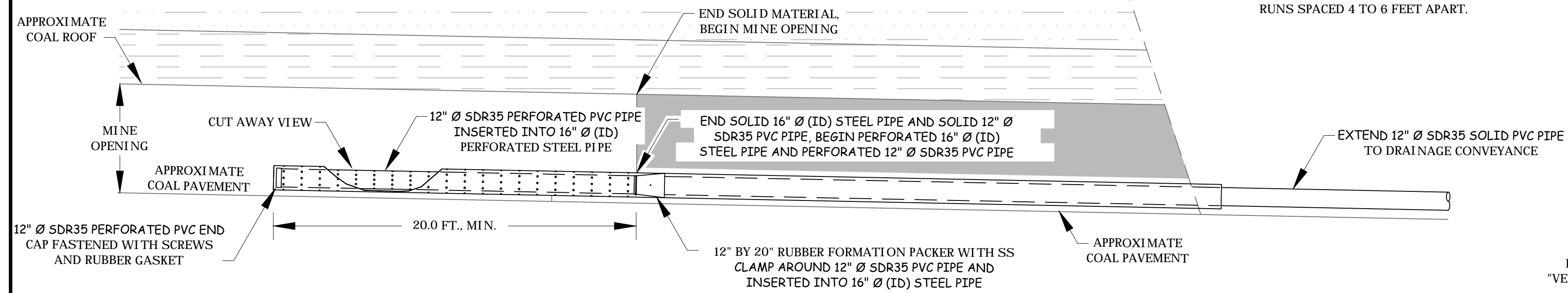


BORING PIPE CROSS SECTION, TYP.

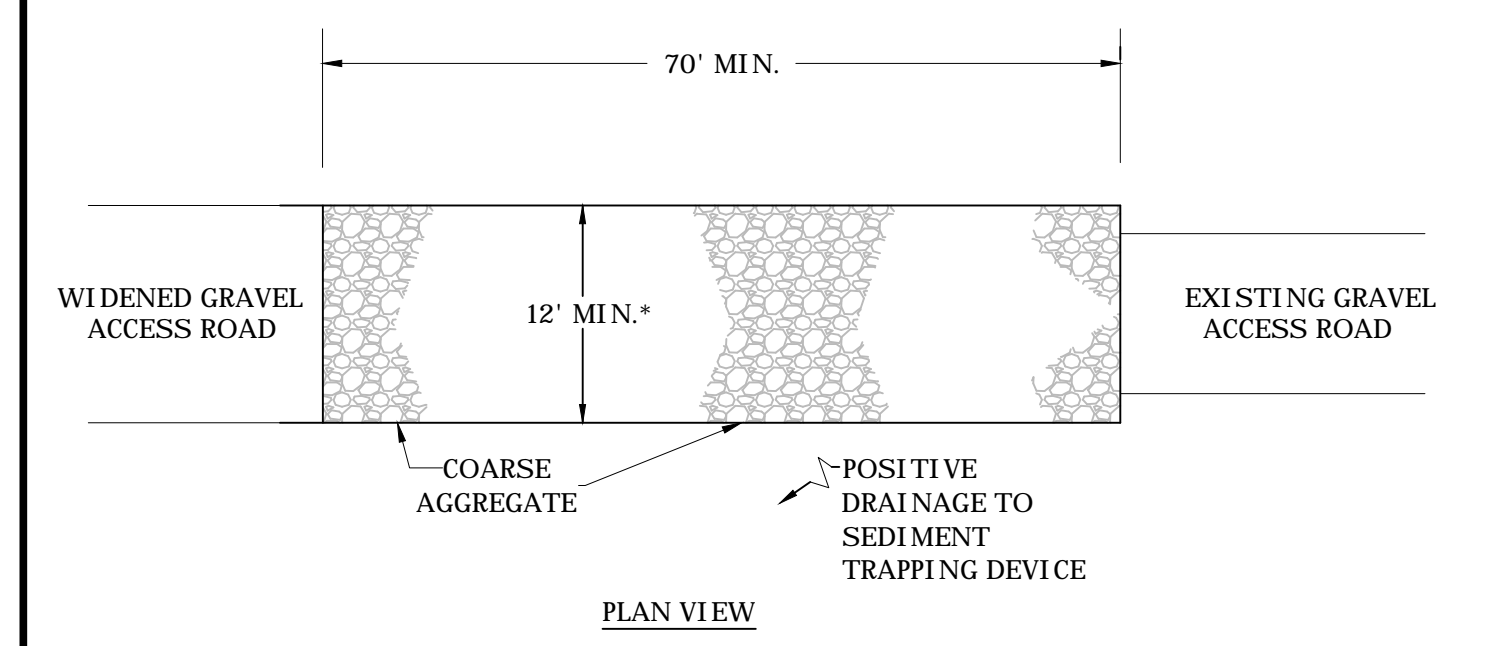
HORIZONTAL BORING PERFORATION DETAIL
N.T.S.



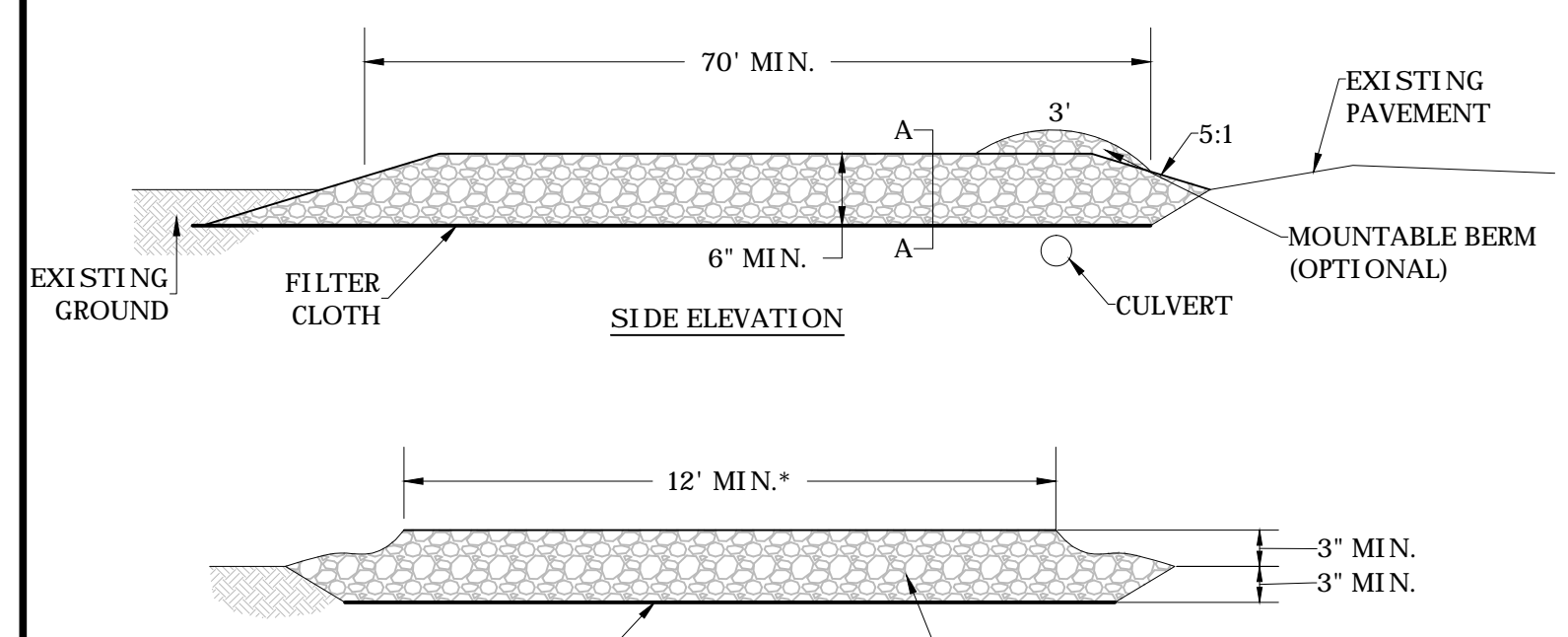
HORIZONTAL BORING PACKER DETAIL
N.T.S.



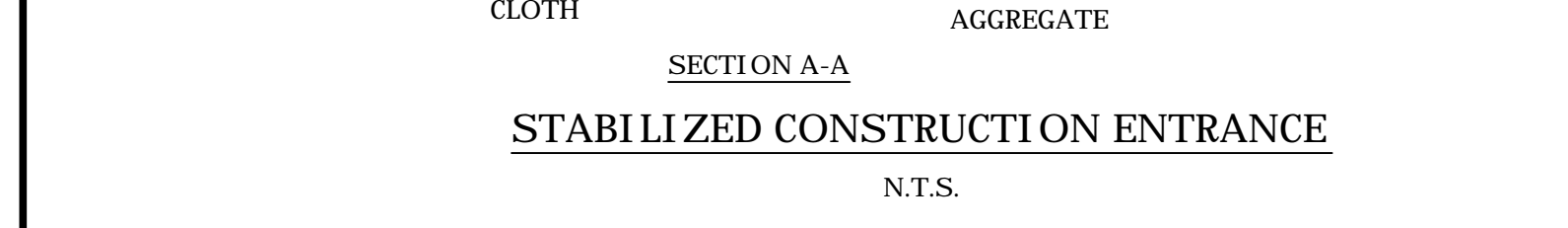
HORIZONTAL BORING CASING DETAIL
N.T.S.



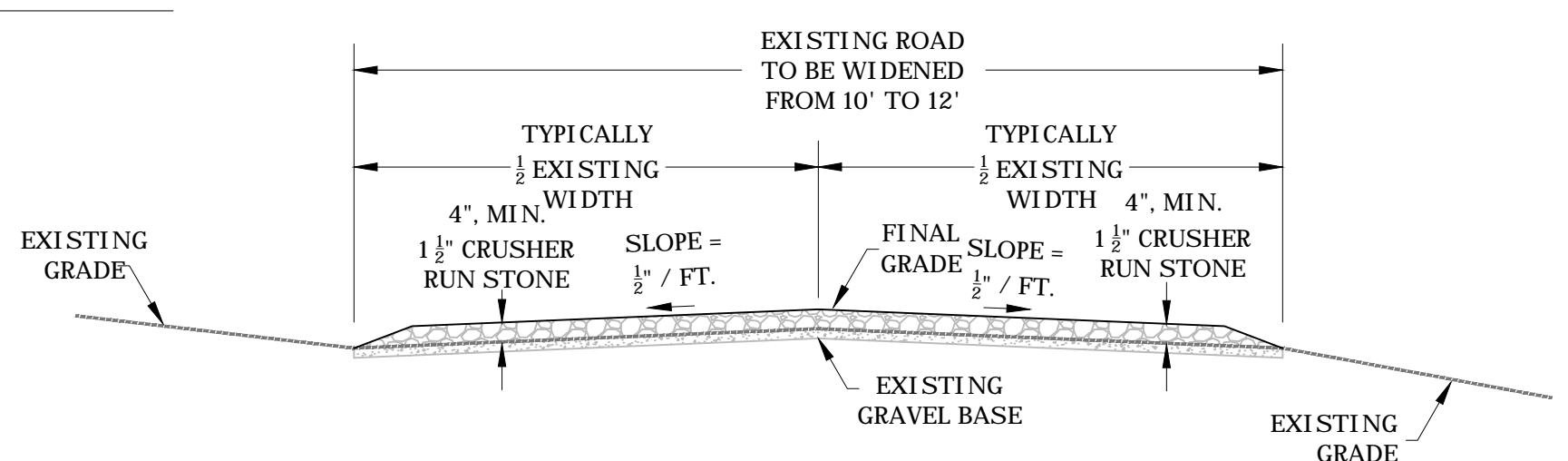
PLAN VIEW



SIDE ELEVATION

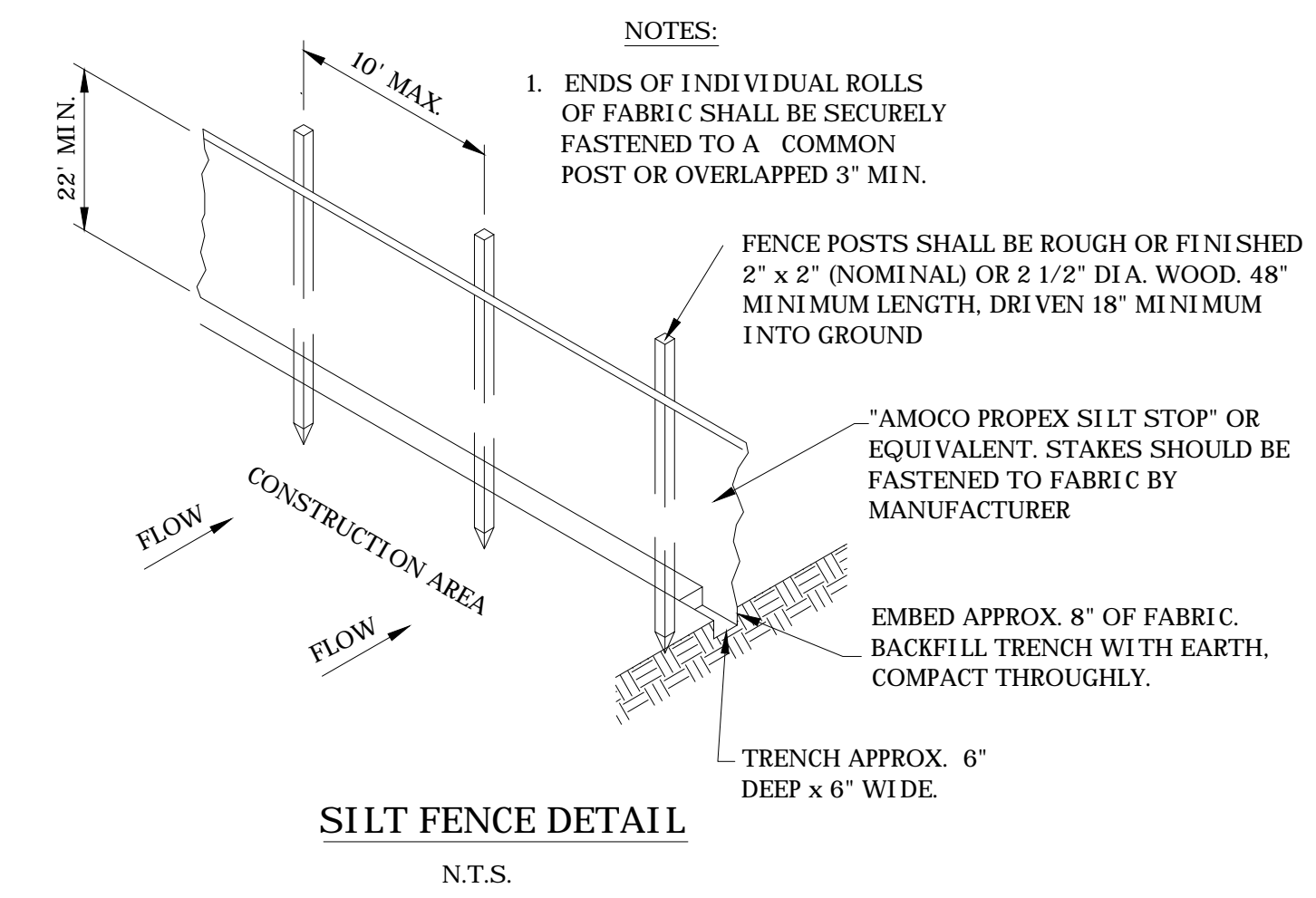


SECTION A-A
STABILIZED CONSTRUCTION ENTRANCE
N.T.S.

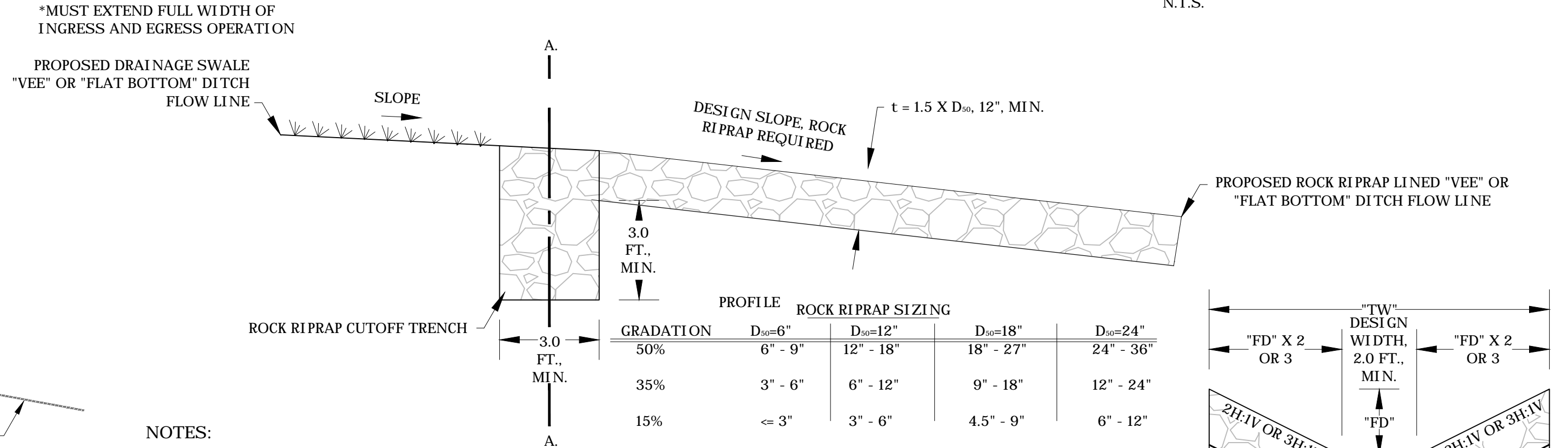


TYPICAL GRAVEL ACCESS ROAD REHABILITATION
SCALE: N.T.S.

- NOTES:
- PRIOR TO STONE PLACEMENT, REGRADE EXISTING ROADWAY INTO "CROWNED" OR "SLOPE TO DITCH" CONFIGURATION AS DIRECTED BY THE ENGINEER. REMOVE, REFILL, AND COMPACT SOFT SPOTS AS DIRECTED BY THE ENGINEER. ALL CUT/FILL SLOPES SHALL BE 2H:1V.
 - 1 1/2" CRUSHER RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WVDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.



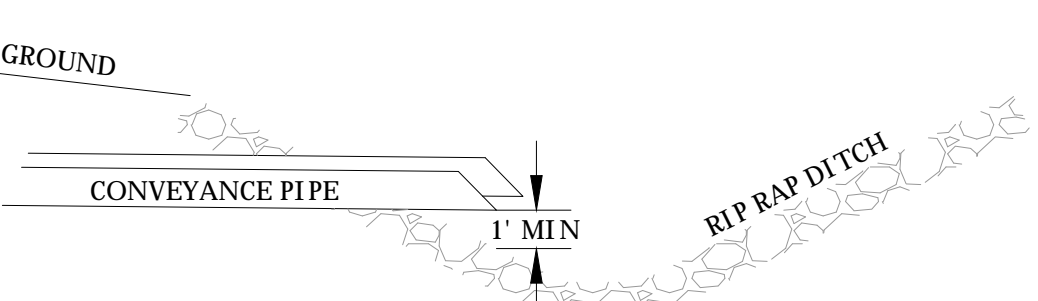
SILT FENCE DETAIL
N.T.S.



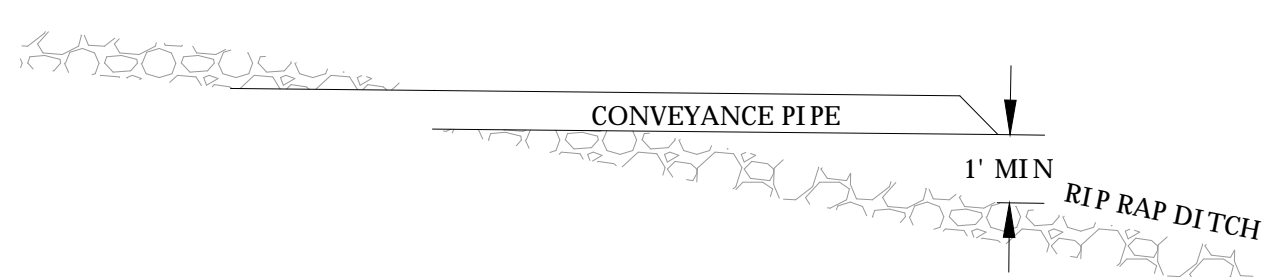
RIP RAP KEY
N.T.S.

NOTES:

- EXTEND RIP RAP KEY LATERALLY THE FULL WIDTH OF THE CHANNEL AS SHOWN IN THE CROSS SECTION VIEWS.
- INSTALL GROUT KEY AT THE JUNCTION OF DRAINAGE SWALE WITH ROCK RIPRAP CHANNEL AS SHOWN IN THE PROFILE VIEW.
- "TW" = TOP WIDTH
 "Fb" = FREEBOARD DEPTH
 "FD" = FLOW DEPTH
 "t" = THICKNESS

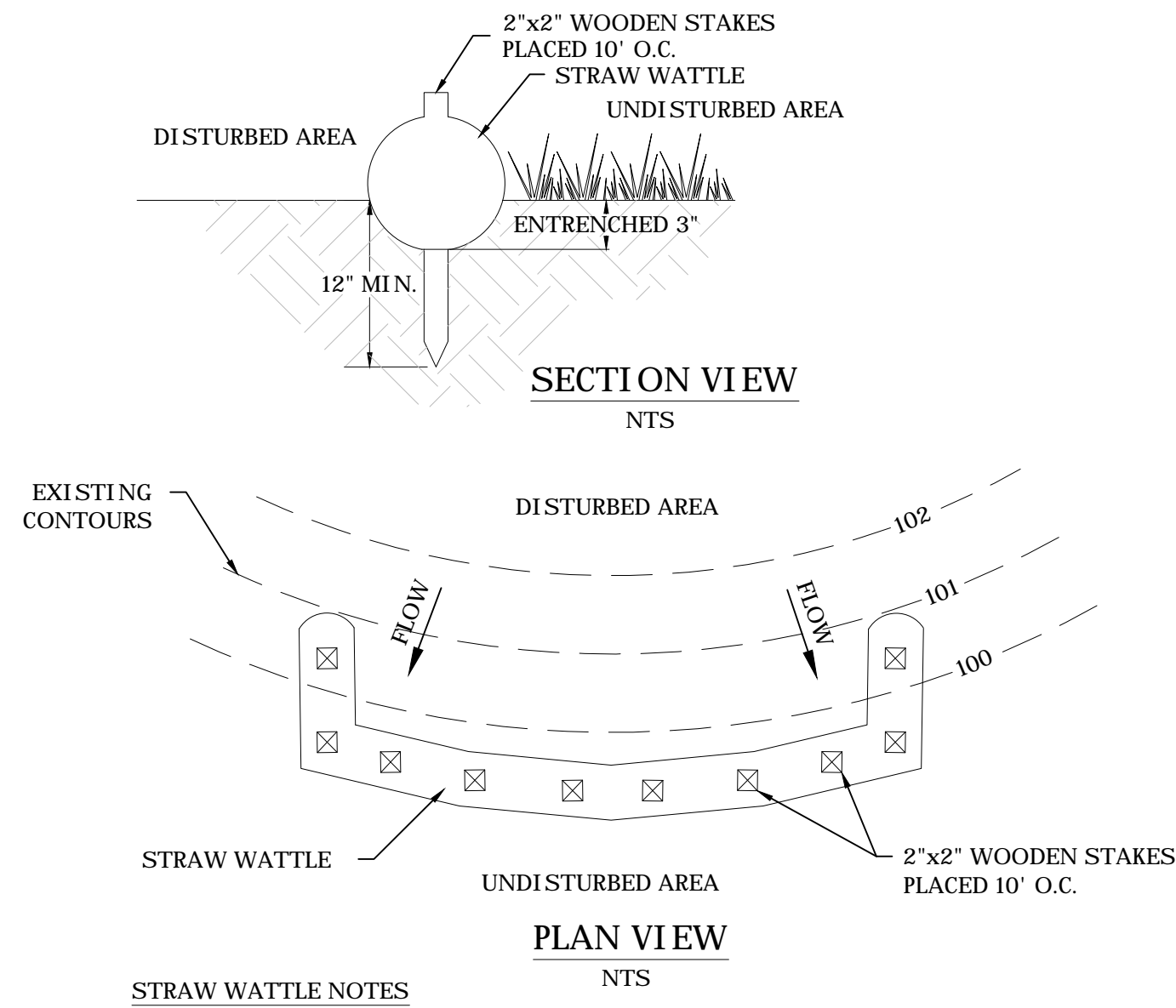


CONVEYANCE PIPE OUTLET TO SIDE OF DITCH
N.T.S.



CONVEYANCE PIPE OUTLET TO CENTER OF DITCH
N.T.S.

SLOPE %	MAX. SLOPE LENGTH ABOVE FENCE	
	12" DIA.	
2 (Or Less)	150'	
5	100'	
10	50'	
15	35'	
20	25'	
25	20'	
30	15'	
35	15'	
40	15'	
45	10'	
50	10'	



STRAW WATTLES SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE WATTLE SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN WATTLE ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY 12" DIAMETER WATTLE SHALL NOT EXCEED THAT SHOWN ON ABOVE TABLE FOR REINFORCED SILT FENCE. MAXIMUM SLOPE LENGTH FOR A 24" DIAMETER WATTLE SHALL NOT EXCEED THAT FOR SUPER SILT FENCE.

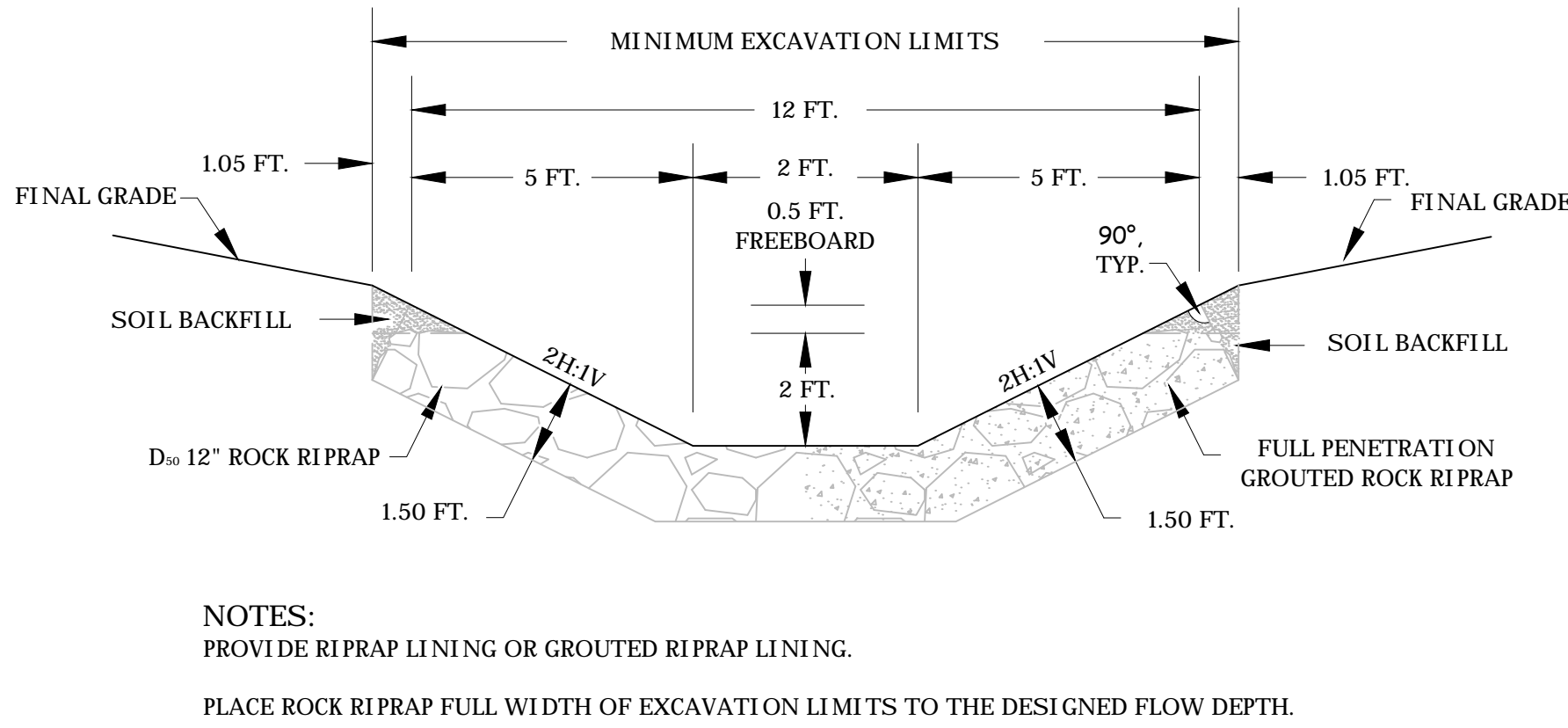
TRAFFIC SHALL NOT BE PERMITTED TO CROSS STRAW WATTLES.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE WATTLE AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

WATTLES SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED WATTLES SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE STRAW WATTLES SHALL BE REPLACED AFTER 6 MONTHS. PHOTODEGRADABLE WATTLES AFTER YEAR. POLYPROPYLENE WATTLES SHALL BE REPLACED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRI BUTARY TO THE WATTLE, STAKES SHALL BE REMOVED. THE WATTLE MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

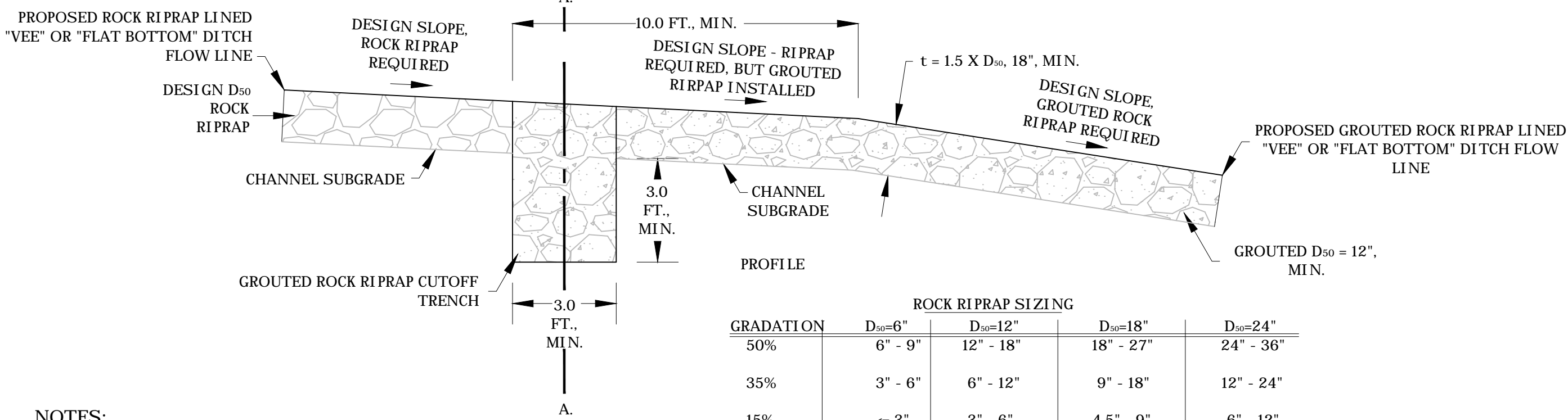


NOTES:
 PROVIDE RIPRAP LINING OR GROUDED RIPRAP LINING.
 PLACE ROCK RIPRAP FULL WIDTH OF EXCAVATION LIMITS TO THE DESIGNED FLOW DEPTH.

TRAPEZOIDAL DITCH DETAIL
N.T.S.

DITCH DESCRIPTION	DITCH STATION	D (MIN.)	SIDE SLOPES	B	AVERAGE SLOPE	LINING	BID ITEM #
TYPICAL TRAPEZOIDAL DITCH (A)	0+00-1+09	2.5'	2:1	2'	3%	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (A)	1+09-1+73	2.5'	2:1	2'	21%	12" RIP RAP	7.1
24" CULVERT (A)	1+73-1+93	2.5'	2:1	2'	16%	NA	7.3
TYPICAL TRAPEZOIDAL DITCH (A)	1+93-2+71	2.5'	2:1	2'	19%	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (A)	2+71-4+28	2.5'	2:1	2'	8%	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (A)	4+28-4+47	2.5'	2:1	2'	18%	12" RIP RAP	7.1
RIP RAP DRAINAGE SWALE	0+00-0+14	2.5'	2:1	2'	NA	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (B)	0+00-1+61	2.5'	2:1	2'	3%	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (B)	1+61-2+04	2.5'	2:1	2'	21%	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (B)	2+04-2+28	2.5'	2:1	2'	6%	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (B)	2+28-2+66	2.5'	2:1	2'	14%	12" RIP RAP	7.1
LOW WATER CROSSING	2+66-2+98	2.5'	2:1	2'	9%	12" GROUDED RIP RAP	7.5
TYPICAL TRAPEZOIDAL DITCH (B)	2+98-3+06	2.5'	2:1	2'	9%	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (B)	3+06-4+11	2.5'	2:1	2'	35%	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (B)	4+11-4+36	2.5'	2:1	2'	48%	12" GROUDED RIP RAP	7.2
TYPICAL TRAPEZOIDAL DITCH (B-1)	0+01-0+11	2.5'	2:1	2'	6%	12" RIP RAP	7.1
24" CULVERT (B-1)	0+11-0+31	2.5'	2:1	2'	6%	NA	7.3
TYPICAL TRAPEZOIDAL DITCH (B-1)	0+31-0+56	2.5'	2:1	2'	4%	12" RIP RAP	7.1
TYPICAL TRAPEZOIDAL DITCH (B-1)	0+56-0+61	2.5'	2:1	2'	2%	12" RIP RAP	7.1
RIP RAP DRAINAGE SWALE	0+00-0+14	2.5'	2:1	2'	NA	12" RIP RAP	7.1

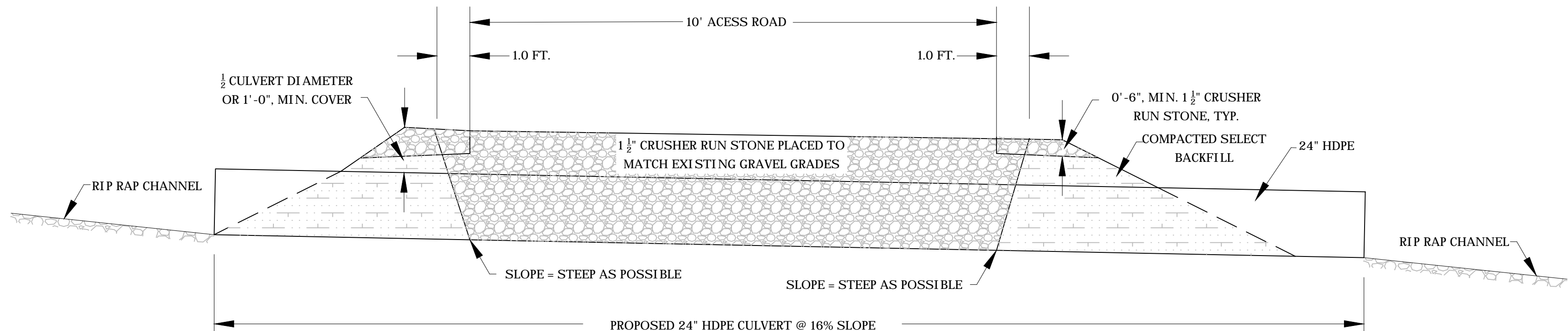
*MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION



NOTES:

- EXTEND GROUT KEY LATERALLY THE FULL WIDTH OF THE CHANNEL AS SHOWN IN THE CROSS SECTION VIEWS.
- INSTALL GROUT KEY AT THE JUNCTION OF ROCK RIPRAP CHANNEL WITH GROUDED ROCK RIPRAP CHANNEL AS SHOWN IN THE PROFILE VIEW.
- AFTER EXCAVATING THE GROUT KEY TO THE DIMENSIONS SHOWN, PLACE GROUT IN THE EXCAVATION TO THE CHANNEL SUB GRADE PRI OR TO PLACING THE RIPRAP.
- "TW" = TOP WIDTH
 "Fb" = FREEBOARD DEPTH
 "F.D." = FLOW DEPTH
 "t" = THICKNESS

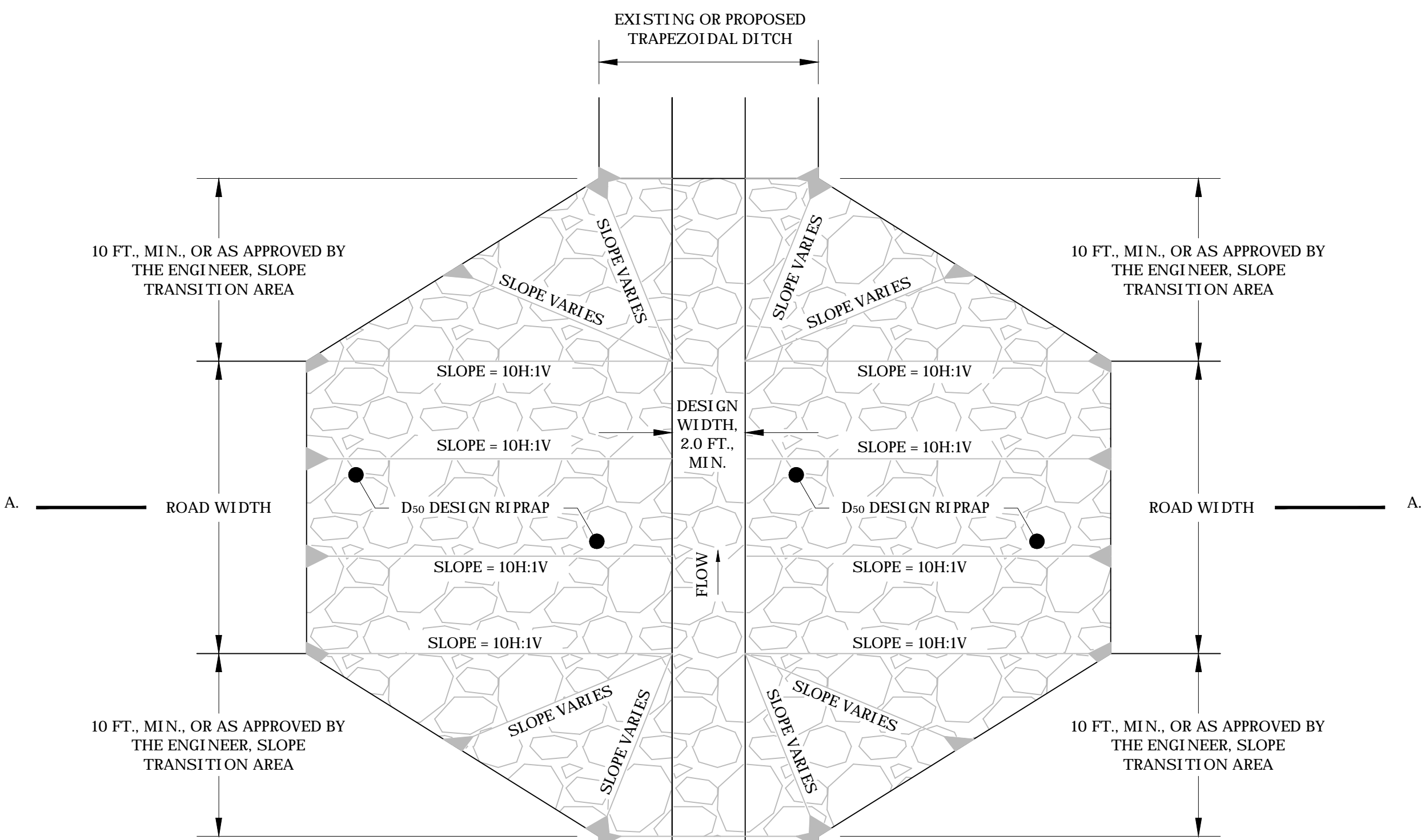
GROUT KEY
SCALE: N.T.S.



CULVERT DETAIL
SCALE: N.T.S.

NOTES:

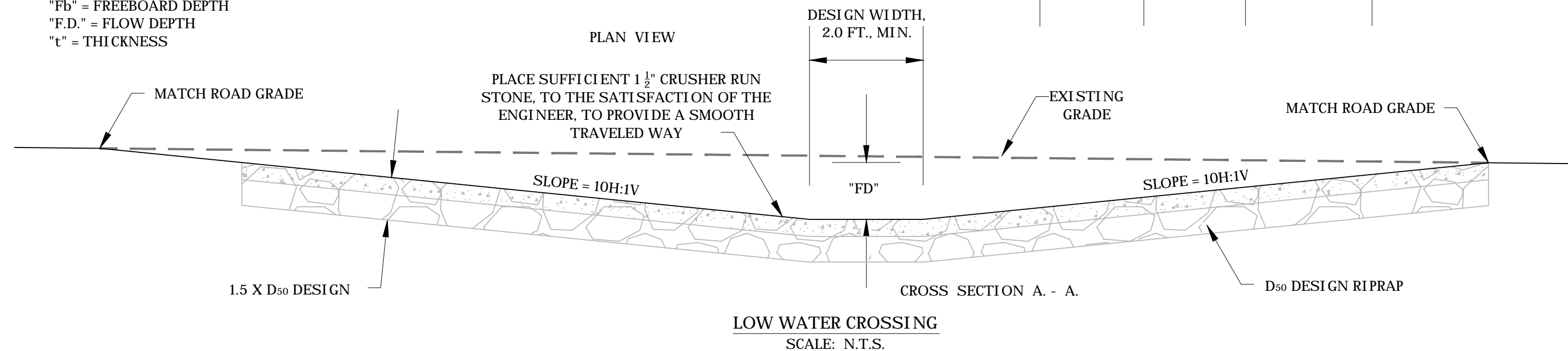
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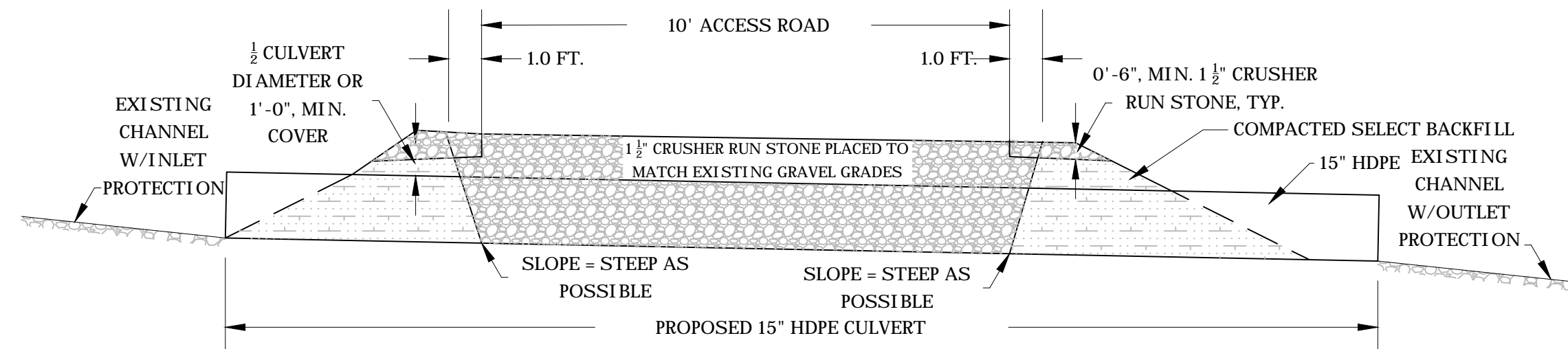
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GRADATION	D ₅₀ =6"	D ₅₀ =12"	D ₅₀ =18"	D ₅₀ =24"
50%	6" - 9"	12" - 18"	18" - 27"	24" - 36"
35%	3" - 6"	6" - 12"	9" - 18"	12" - 24"
15%	< 3"	3" - 6"	4.5" - 9"	6" - 12"



LOW WATER CROSSING
SCALE: N.T.S.



ENTRANCE CULVERT DETAIL
SCALE: N.T.S.

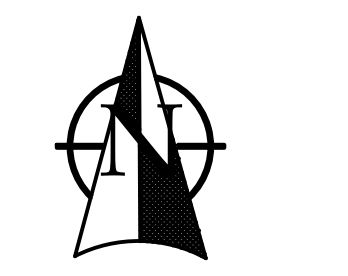
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CTL Engineering of West Virginia, Inc.
 510 C Street
 Charleston, WV 25303
 733 Fairmont Road
 Morgantown, WV 26501
 101 Cambridge Place, Bridgeport, WV 26330
 Phone: 304/746-1148
 Fax: 304/296-9922
 E-MAIL: OFFICE@CTLWV.COM
 WEBSITE: WWW.CTLWV.COM
 SERVICES: SURVEYING * ENGINEERING * MAPPING * ENVIRONMENTAL * TESTING & CONSTRUCTION OBSERVATION * LABORATORY

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REVISIONS	Description	Date
Approved		

Drawn By: HDC
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 Project No. 13100047MOR
 Drawing Name Cover_Sheet_Details
 Sheet No. 10

