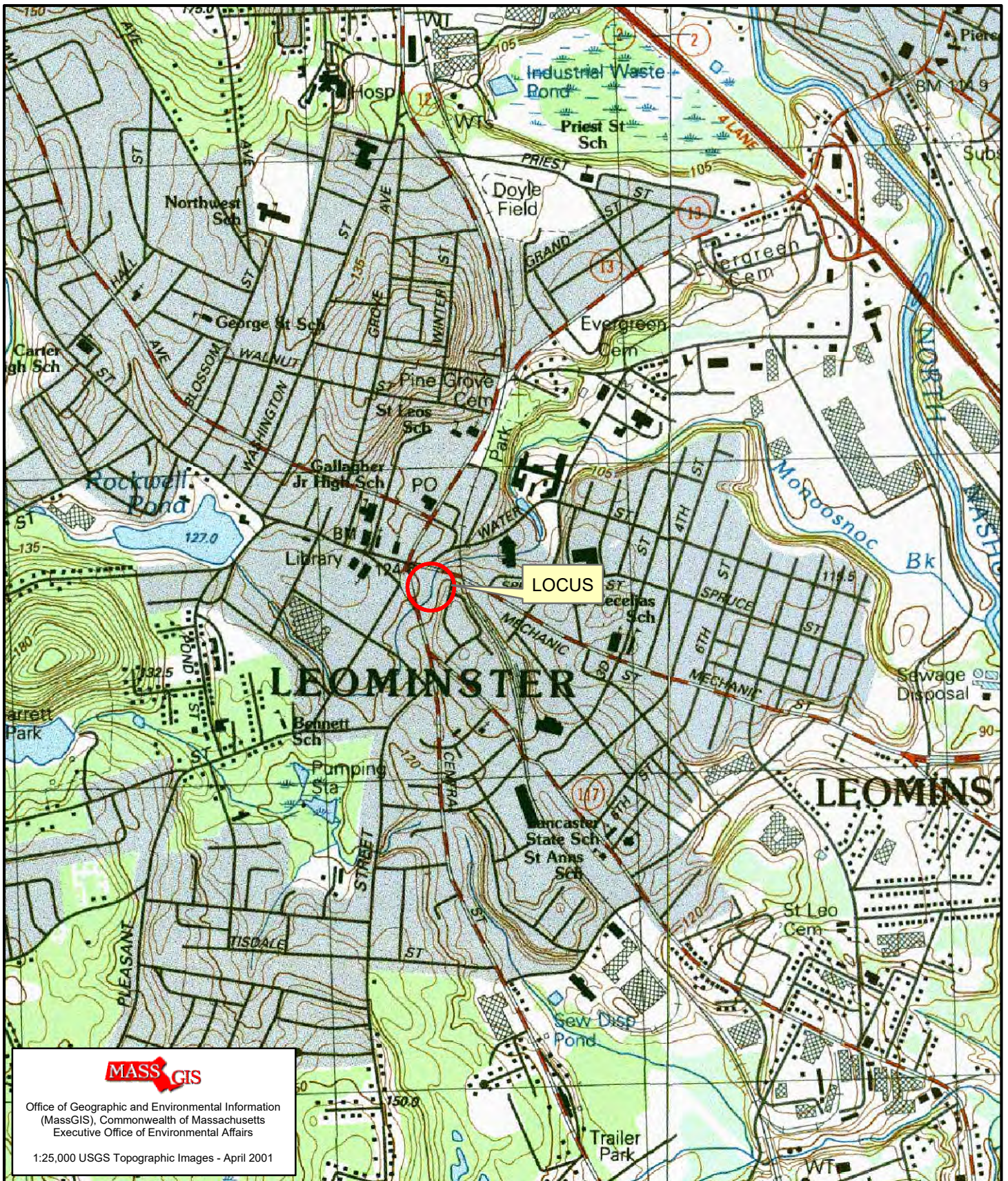




**LEC**

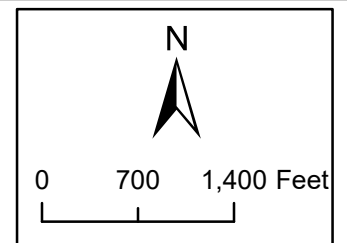
Environmental Consultants, Inc.

Wakefield, MA  
781.245.2500

[www.lecenvironmental.com](http://www.lecenvironmental.com)

Figure 1: USGS Topographic Map  
Monoosnoc Brook  
Leominster, MA

January 27, 2021







Environmental Consultants, Inc.

Wakefield, MA  
781.245.2500

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Figure 2: Aerial with NHESP Estimated & Priority Habitats  
and Coldwater Fish Resource  
Monoosnoc Brook  
Leominster, MA

January 27, 2021

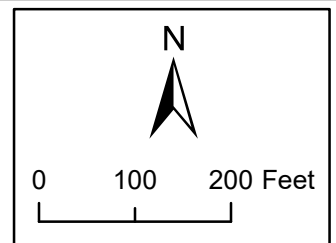






Photo 1. Northerly view of Monoosnoc Brook, stone masonry retaining walls, box culvert beneath parking area.



Photo 2. Northerly view of box culvert (concrete and stone masonry retaining walls) and Monoosnoc Brook below parking area and Mechanic Street.





Photo 3. View of temporary slope stabilization area.



Photo 4. Northerly view of Monoosnoc Brook, vegetated embankment, stone masonry retaining walls and temporary slope stabilization area.





Photo 5. Northerly view from Central Street culvert showing Monoosnoc Brook, stone masonry retaining walls, and concrete utility bridge.



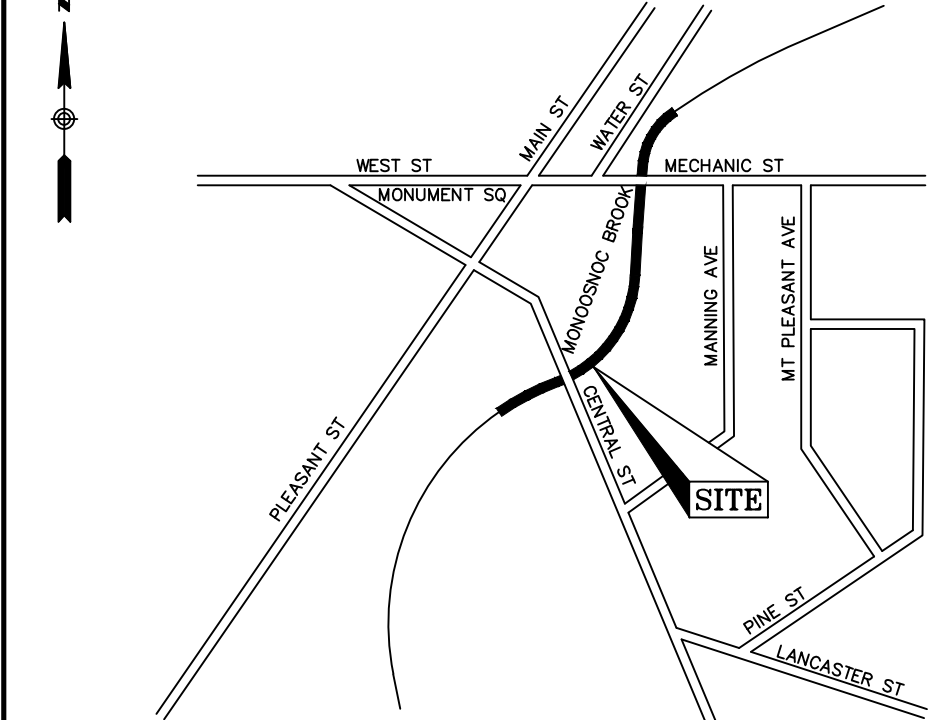
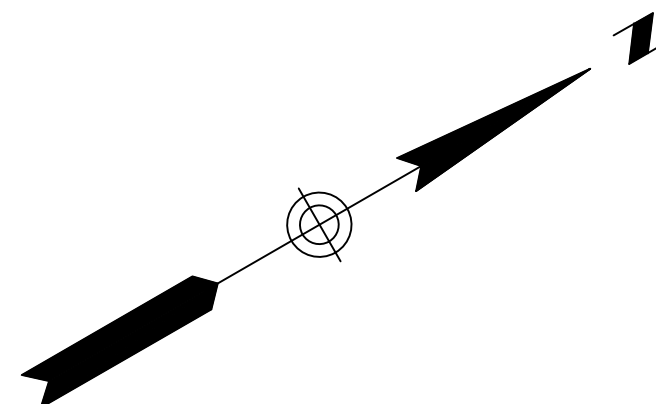
Photo 6. Southerly view of Monoosnoc Brook, Central Street culvert, stone masonry retaining walls and concrete utility bridge.





Photo 7. Easterly view of Monoosnoc Brook, Central Street culvert, stone masonry retaining wall and Manning Avenue in background.





LOCUS MAP  
(N.T.S.)

UTILITY STATEMENTS

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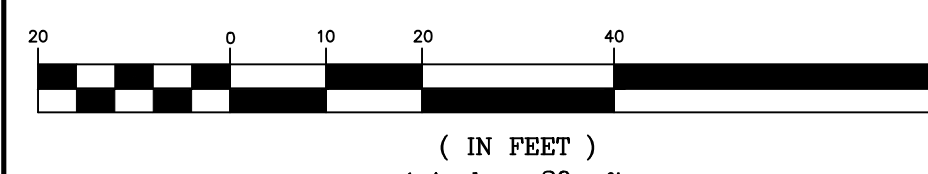
NOTES

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6. BORDERING VEGETATED WETLANDS (BVW) AND APPROXIMATE MEAN ANNUAL HIGH WATER (MAHW) LINES DELINEATED BY LEC ENVIRONMENTAL CONSULTANTS, INC. ON DECEMBER 16, 2020, LEC FILE # W&C/20-110.04

LEGEND

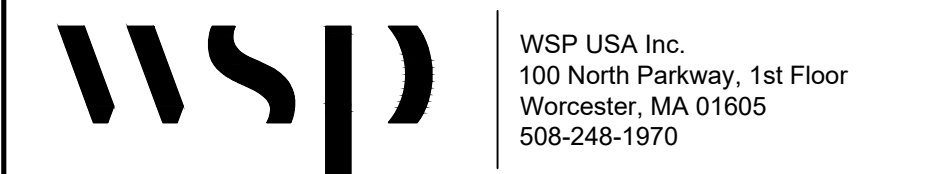
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  - AREA DRAIN
  - ROUND CATCH BASIN
  - CATCH BASIN
  - ▢ DOUBLE CATCH BASIN
  - ◁ CULVERT
  - DRAIN MANHOLE
  - NO LABEL MANHOLE
  - ELECTRIC BOX
  - ELECTRIC HANDHOLE
  - TRAFFIC BOX
  - ⌘ GAS VALVE
  - ⌘ WATER GATE
  - ⌘ FIRE HYDRANT
  - DECIDUOUS TREE
  - CONIFER TREE
  - SHRUB
  - SIGN (SINGLE POSTED)
  - POST
  - BORING
  - LIGHT POLE
  - BOLLARD
  - HANDICAP PARKING
- 
- TOWN PROPERTY LINE
  - TOWN INTERIOR LOT LINE
  - ABUTTERS LOT LINE
  - EASEMENT
  - CHAIN LINK FENCE
  - METAL/WIRE FENCE
  - WOOD GUARDRAIL
  - TREE LINE
  - INTERMEDIATE CONTOURS
  - INDEX CONTOURS
  - CURRENT EDGE OF WATER
  - APPX. BANK MEAN ANNUAL HIGH WATER
  - BORDERING VEGETATED WETLAND LINE
  - SEWER LINE
  - DRAIN LINE
  - WATER LINE
  - GAS LINE
  - UNDERGROUND ELECTRIC
  - OVERHEAD WIRE
  - RECORD WATER LINE
  - RECORD GAS LINE
  - RECORD UNDERGROUND ELECTRIC
  - RECORD UNDERGROUND TELEPHONE
  - RECORD COMMUNICATION LINE

GRAPHIC SCALE



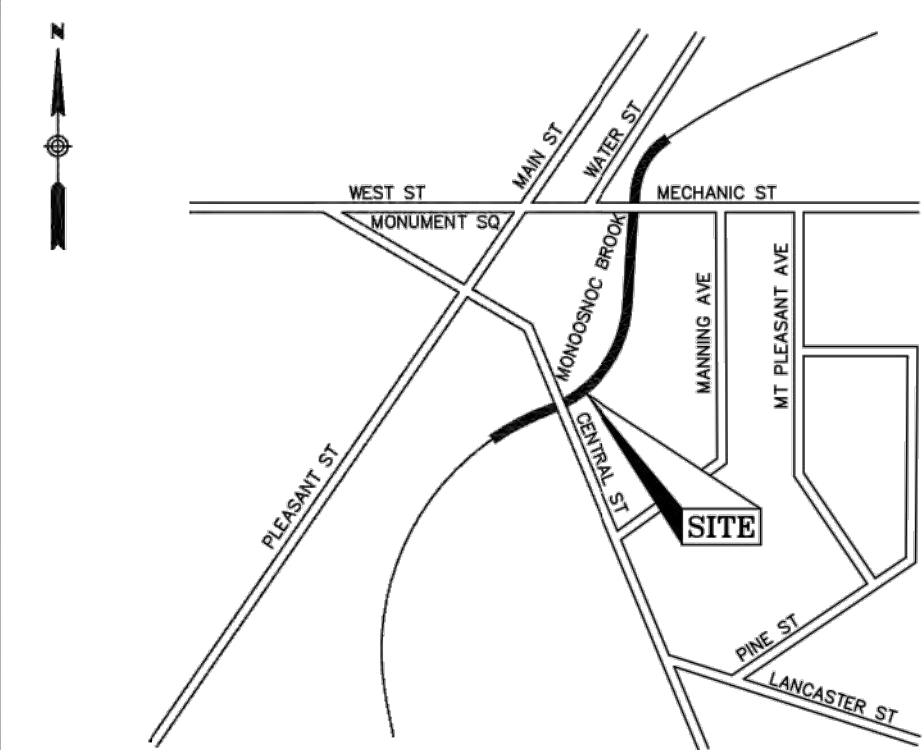
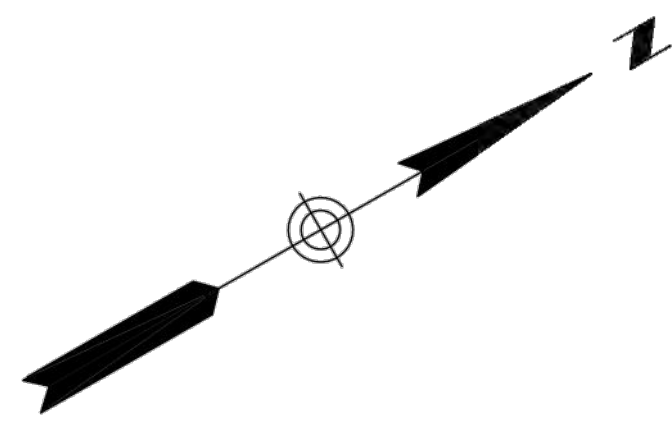
| REVISION | DESCRIPTION |
|----------|-------------|
| ---      | ---         |

EXISTING CONDITIONS PLAN  
CENTRAL ST. MECHANIC ST. & MANNING AVE.  
LEOMINSTER, MASSACHUSETTS  
PREPARED FOR  
WOODARD & CURRAN, INC.



|             |        |       |                  |           |         |
|-------------|--------|-------|------------------|-----------|---------|
| Drawn By    | RBP    | Date  | JANUARY 10, 2020 | Job No.   | 190299L |
| Surveyed By | DP     |       |                  |           |         |
| Checked By  | DPP    | Scale | 1" = 20'         | Sheet No. | 1 OF 1  |
| Book No.    | CHA-77 |       |                  |           |         |





LOCUS MAP  
(N.T.S.)

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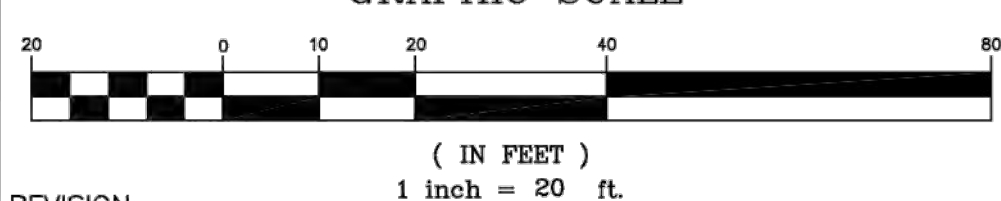
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LEGEND

- |                        |                        |
|------------------------|------------------------|
| ● AIR CONDITIONER      | ○ NO LABEL MANHOLE     |
| ● ROUND CATCH BASIN    | ○ CULVERT              |
| ● CATCH BASIN          | ○ DOUBLE CATCH BASIN   |
| ● DOUBLE CATCH BASIN   | ○ DRAIN MANHOLE        |
| ○ CULVERT              | ○ SEWER MANHOLE        |
| ○ DRAIN MANHOLE        | ○ ELECTRIC BOX         |
| ○ NO LABEL MANHOLE     | ○ ELECTRIC HANDHOLE    |
| ○ SEWER MANHOLE        | ○ TRAFFIC BOX          |
| ○ ELECTRIC BOX         | ○ GAS VALVE            |
| ○ ELECTRIC HANDHOLE    | ○ WATER GATE           |
| ○ TRAFFIC BOX          | ○ FIRE HYDRANT         |
| ○ GAS VALVE            | ○ DECIDUOUS TREE       |
| ○ WATER GATE           | ○ CONIFER TREE         |
| ○ FIRE HYDRANT         | ○ SHRUB                |
| ○ DECIDUOUS TREE       | ○ SIGN (SINGLE POSTED) |
| ○ CONIFER TREE         | ○ POST                 |
| ○ SHRUB                | ○ BORING               |
| ○ SIGN (SINGLE POSTED) | ○ LIGHT POLE           |
| ○ POST                 | ○ BOLLARD              |
| ○ BORING               | ○ UNABLE TO OBSERVE    |
| ○ LIGHT POLE           | ○ COULD NOT OPEN       |
| ○ BOLLARD              |                        |
| ○ UNABLE TO OBSERVE    |                        |
| ○ COULD NOT OPEN       |                        |
- 
- |                                    |                                     |
|------------------------------------|-------------------------------------|
| — TOWN PROPERTY LINE               | — TOWN INTERIOR LOT LINE            |
| — ABUTTERS LOT LINE                | — EASEMENT                          |
| — CHAIN LINK FENCE                 | — METAL/WIRE FENCE                  |
| — WOOD GUARDRAIL                   | — TREE LINE                         |
| — INTERMEDIATE CONTOURS            | — INDEX CONTOURS                    |
| — CURRENT EDGE OF WATER            | — APPX. BANK MEAN ANNUAL HIGH WATER |
| — BORDERING VEGETATED WETLAND LINE | — SEWER LINE                        |
| — DRAIN LINE                       | — WATER LINE                        |
| — GAS LINE                         | — UNDERGROUND ELECTRIC              |
| — OVERHEAD WIRES                   | — RECORD WATER LINE                 |
| — RECORD GAS LINE                  | — RECORD UNDERGROUND ELECTRIC       |
| — RECORD UNDERGROUND TELEPHONE     | — RECORD COMMUNICATION LINE         |

GRAPHIC SCALE



| REVISION | DATE | DESCRIPTION |
|----------|------|-------------|
|          |      |             |

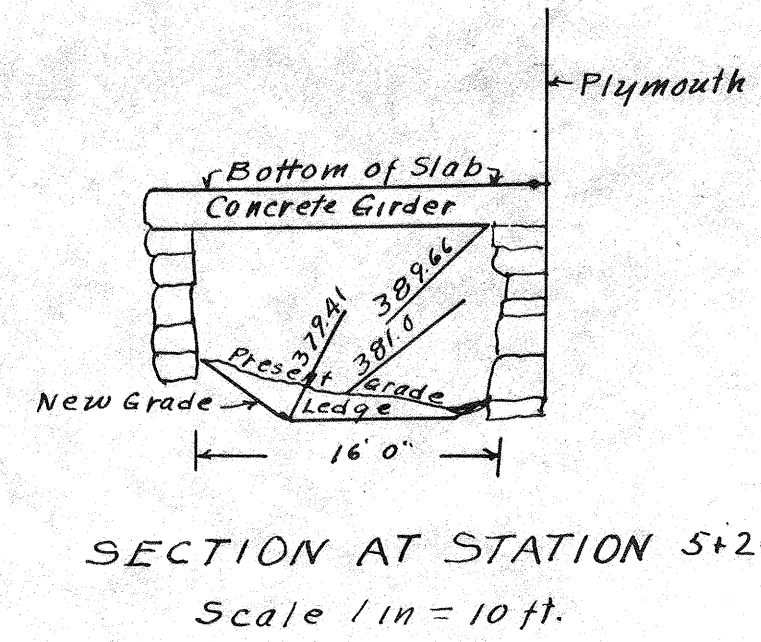
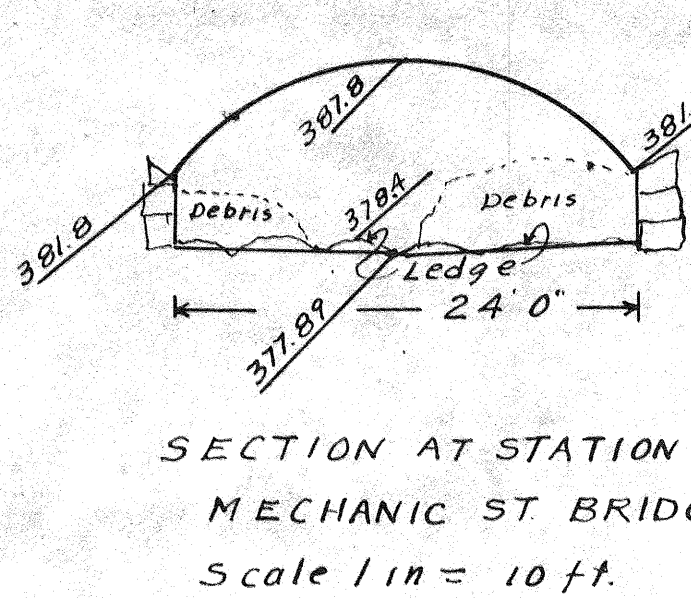
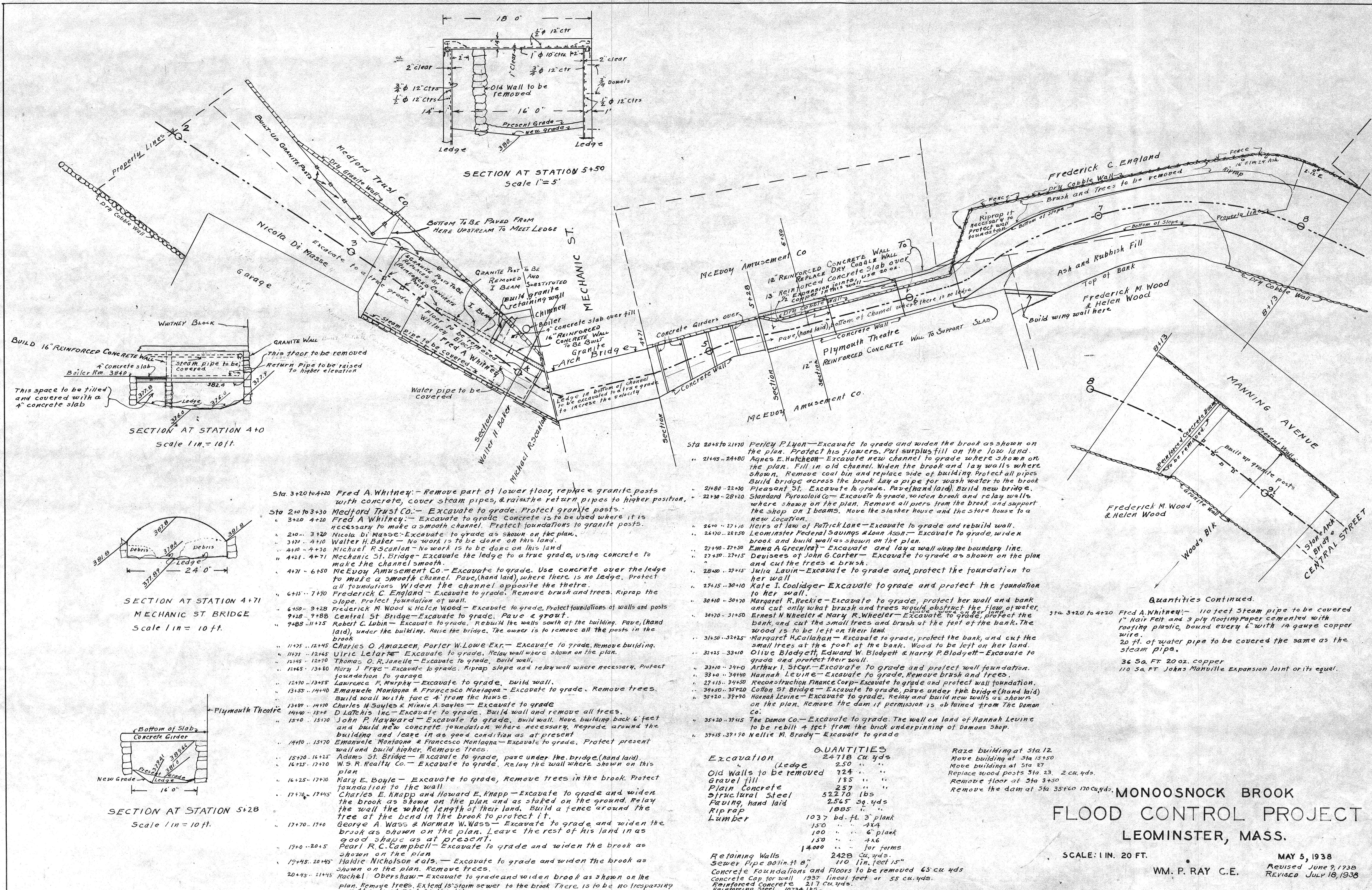
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CENTRAL ST. MECHANIC ST. & MANNING AVE.  
LEOMINSTER, MASSACHUSETTS  
PREPARED FOR  
WOODARD & CURRAN, INC.



WSP USA Inc.  
100 North Parkway, 1st Floor  
Worcester, MA 01605  
508-248-1970

|             |        |       |                  |           |         |
|-------------|--------|-------|------------------|-----------|---------|
| Drawn By    | RBP    | Date  | JANUARY 10, 2020 | Job No.   | 190299L |
| Surveyed By | DP     | Scale | 1" = 20'         | Sheet No. | 1 OF 1  |
| Checked By  | DPP    |       |                  |           |         |
| Book No.    | CHA-77 |       |                  |           |         |





- Sta 3+20 to 4+20 Fred A. Whitney - Remove part of lower floor, replace granite posts with concrete, cover steam pipes, and raise the return pipes to higher position.
Sta 2+0 to 3+30 Medford Trust Co. - Excavate to grade. Protect granite posts.
Fred A. Whitney - Excavate to grade. Concrete is to be used where it is necessary to make a smooth channel. Protect foundations to granite posts.
2+0 to 3+20 Nicola Di Masse - Excavate to grade as shown on the plan.
3+20 to 4+10 Walter H. Baker - No work is to be done on this land.
4+10 to 4+30 Michael R. Scanlon - No work is to be done on this land.
4+21 to 4+71 Mechanic St. Bridge - Excavate the ledge to a true grade, using concrete to make the channel smooth.
4+71 to 6+50 McEvoy Amusement Co. - Excavate to grade. Use concrete over the ledge to make a smooth channel. Pave (hand laid) where there is no ledge. Protect all foundations. Widen the channel opposite the theatre.
6+15 to 7+70 Frederick C. England - Excavate to grade. Remove brush and trees. Riprap the slope. Protect foundation of wall.
6+50 to 9+28 Frederick M. Wood & Helen Wood - Excavate to grade. Protect foundations of walls and posts.
9+28 to 9+88 Central St. Bridge - Excavate to grade. Pave a grade.
9+88 to 11+70 Robert C. Lubin - Excavate to grade. Rebuild the walls south of the building. Pave (hand laid) under the building. Raise the bridge. The owner is to remove all the posts in the brook.
11+70 to 12+45 Charles O. Amazeen, Porter W. Lowe Exr. - Excavate to grade. Remove building.
11+70 to 12+45 Vivian Letarte - Excavate to grade. Relay wall where shown on the plan.
11+70 to 12+70 Thomas O. R. Janelle - Excavate to grade. Build wall.
11+70 to 13+80 Mary J. Frye - Excavate to grade. Riprap slope and relay wall where necessary. Protect foundation to garage.
12+70 to 13+55 Lawrence F. Murphy - Excavate to grade. Build wall.
13+55 to 14+40 Emanuele Montagna & Francesco Montagna - Excavate to grade. Remove trees. Build wall with face 4' from the house.
13+80 to 14+70 Charles N. Sayles & Minnie A. Sayles - Excavate to grade.
14+40 to 15+0 D. LaTich's Inc. - Excavate to grade. Build wall and remove all trees.
15+0 to 15+70 John P. Hayward - Excavate to grade. Build wall. Move building back 6 feet and build new concrete foundation where necessary. Regrade around the building and leave in as good condition as at present.
14+70 to 15+70 Emanuele Montagna & Francesco Montagna - Excavate to grade. Protect present wall and build higher. Remove trees.
15+70 to 16+25 Adams St. Bridge - Excavate to grade, pave under the bridge (hand laid).
16+25 to 17+70 W.S.R. Realty Co. - Excavate to grade. Relay the wall where shown on this plan.
16+25 to 17+70 Mary E. Boyle - Excavate to grade. Remove trees in the brook. Protect foundation to the wall.
17+70 to 17+45 Charles E. Knapp and Howard E. Knapp - Excavate to grade and widen the brook as shown on the plan and as staked on the ground. Relay the wall the whole length of their land. Build a fence around the tree at the bend in the brook to protect it.
17+70 to 17+0 George A. Wass & Norman W. Wass - Excavate to grade and widen the brook as shown on the plan. Leave the rest of his land in as good shape as at present.
17+0 to 20+5 Pearl R. C. Campbell - Excavate to grade and widen the brook as shown on the plan.
17+45 to 20+45 Halide Nicholson & als. - Excavate to grade and widen the brook as shown on the plan. Remove trees.
20+45 to 21+45 Rachel Obershaw - Excavate to grade and widen brook as shown on the plan. Remove trees. Extend storm sewer to the brook. There is to be no trespassing on the front part of the lot.

- Sta 20+50 to 21+70 Perley Flynn - Excavate to grade and widen the brook as shown on the plan. Protect his flowers. Put surplus fill on the low land.
21+45 to 24+80 Agnes E. Hutcheon - Excavate new channel to grade where shown on the plan. Fill in old channel. Widen the brook and lay walls where shown. Remove coal bin and replace side of building. Protect all pipes. Build bridge across the brook. Lay a pipe for wash water to the brook.
21+80 to 22+30 Pleasant St. - Excavate to grade. Pave (hand laid). Build new bridge.
22+30 to 28+20 Standard Pyroloxoid Co. - Excavate to grade, widen brook and relay walls where shown on the plan. Remove all piers from the brook and support the shop on I beams. Move the slasher house and the store house to a new location.
26+0 to 27+10 Heirs at law of Patrick Lane - Excavate to grade and rebuild wall.
26+10 to 28+50 Leominster Federal Savings & Loan Assn. - Excavate to grade, widen brook and build walls as shown on the plan.
27+40 to 27+50 Emma A. Greenleaf - Excavate and lay a wall along the boundary line.
27+50 to 27+15 Devises of John G. Carter - Excavate to grade as shown on the plan and cut the trees & brush.
28+30 to 29+15 Julia Lavin - Excavate to grade and protect the foundation to her wall.
29+15 to 30+10 Kate I. Coolidge - Excavate to grade and protect the foundation to her wall.
30+10 to 30+70 Margaret K. Reekie - Excavate to grade, protect her wall and bank and cut only what brush and trees would obstruct the flow of water.
30+70 to 31+50 Ernest M. Wheeler & Mary R. Wheeler - Excavate to grade, protect the bank, and cut the small trees and brush at the foot of the bank. The wood is to be left on their land.
31+50 to 32+25 Margaret H. Callahan - Excavate to grade, protect the bank, and cut the small trees at the foot of the bank. Wood to be left on her land.
32+25 to 33+10 Olive Blodgett, Edward W. Blodgett & Harry P. Blodgett - Excavate to grade and protect their wall.
33+10 to 34+0 Arthur I. St Cyr - Excavate to grade and protect wall foundation.
33+0 to 34+40 Hannah Levine - Excavate to grade. Remove brush and trees.
27+15 to 34+50 Reconstruction Finance Corp. - Excavate to grade and protect wall foundation.
34+50 to 35+20 Cotton St. Bridge - Excavate to grade, pave under the bridge (hand laid).
35+20 to 35+90 Hannah Levine - Excavate to grade. Relay and build new walls as shown on the plan. Remove the dam if permission is obtained from The Damon Co.
35+20 to 35+45 The Damon Co. - Excavate to grade. The wall on land of Hannah Levine to be rebuilt 4 feet from the brick underpinning of Damon's Shop.
35+45 to 39+90 Nellie M. Brady - Excavate to grade.

Table with 2 columns: Item and Quantity. Includes Excavation (24718 cu yds), Old Walls to be removed (724), Gravel fill (185), Plain Concrete (257), Structural Steel (52270 lbs), Paving, hand laid (2565 sq yds), Riprap (1885), Lumber (1037 bd. ft.), Retaining Walls (2428 cu yds), Sewer Pipe 30 in. x 18" (110), Concrete Foundations and Floors to be removed (65 cu yds), Concrete Cap for wall 135' (1000 feet or 55 cu yds), Reinforced Concrete (217 cu yds), Reinforcing Steel (10734 lbs).

Raze building at Sta 12.
Move building at Sta 13+50.
Move buildings at Sta 27.
Replace wood posts Sta 23. 2 cu yds.
Remove floor at Sta 3+50.
Remove the dam at Sta 35+60 170 cu yds.

MONOOSNOCK BROOK
FLOOD CONTROL PROJECT
LEOMINSTER, MASS.

SCALE: 1 IN. = 20 FT.

MAY 5, 1938
Revised June 9, 1938
Revised July 18, 1938
WM. P. RAY C.E.



Design Option 1  
Looking North Perspective





Design Option 1  
Looking South Perspective





Design Option 2  
Looking North Perspective





Design Option 2  
Looking South Perspective





Design Option 3  
Looking North Perspective





Design Option 3  
Looking South Perspective







#### Alternative 1 – Minimal Intervention

| Resource Area        | Temporary Impact | Permanent Impact |
|----------------------|------------------|------------------|
| BVW (sf)             | 1,659            | 0                |
| Bank (LF)            | 580              | 0                |
| LUWW (sf)            | 4,671            | 0                |
| BLSF (sf)            | 37,334           | 0                |
| Resource Area        | Impact           |                  |
| Riverfront Area (sf) | 41,370           |                  |

#### Alternative 2 – Naturalized Edge

| Resource Area        | Temporary Impact | Permanent Impact |
|----------------------|------------------|------------------|
| BVW (sf)             | 1,220            | 439              |
| Bank (LF)            | 531              | 318              |
| LUWW (sf)            | 1,711            | 2,645            |
| BLSF (sf)            | 34,140           | 5,918            |
| Resource Area        | Impact           |                  |
| Riverfront Area (sf) | 48,238           |                  |

#### Alternative 3 – Extension of Monoosnoc Brook

| Resource Area        | Temporary Impact | Permanent Impact |
|----------------------|------------------|------------------|
| BVW (sf)             | 0                | 1,659            |
| Bank (LF)            | 300              | 549              |
| LUWW (sf)            | 0                | 4,356            |
| BLSF (sf)            | 42,677           | 25,624           |
| Resource Area        | Impact           |                  |
| Riverfront Area (sf) | 88,844           |                  |

#### Notes:

1. The final length of the bank will be shorter than the existing length of bank, which currently extends to the limit of the jersey barrier repair. Alternative 1 intends to restore the bank back to its original length.
2. Temporary impacts to LUWW include disturbance to the LUWW during construction, therefore it includes the entire limit of work outside the limit of grading for all three Alternatives.
3. Flood volume storage will increase as a result of each of the alternatives.