Bridge #0022-081.376(Routine)
ND HIGHWAY 22 over RUSSIAN SPRING CREEK
Location: 9 NORTH OF I-94
Inspection Date: September 01, 2020

Latitude:47.02938, Longitude:-102.79989

Route:00022 Log:81.359

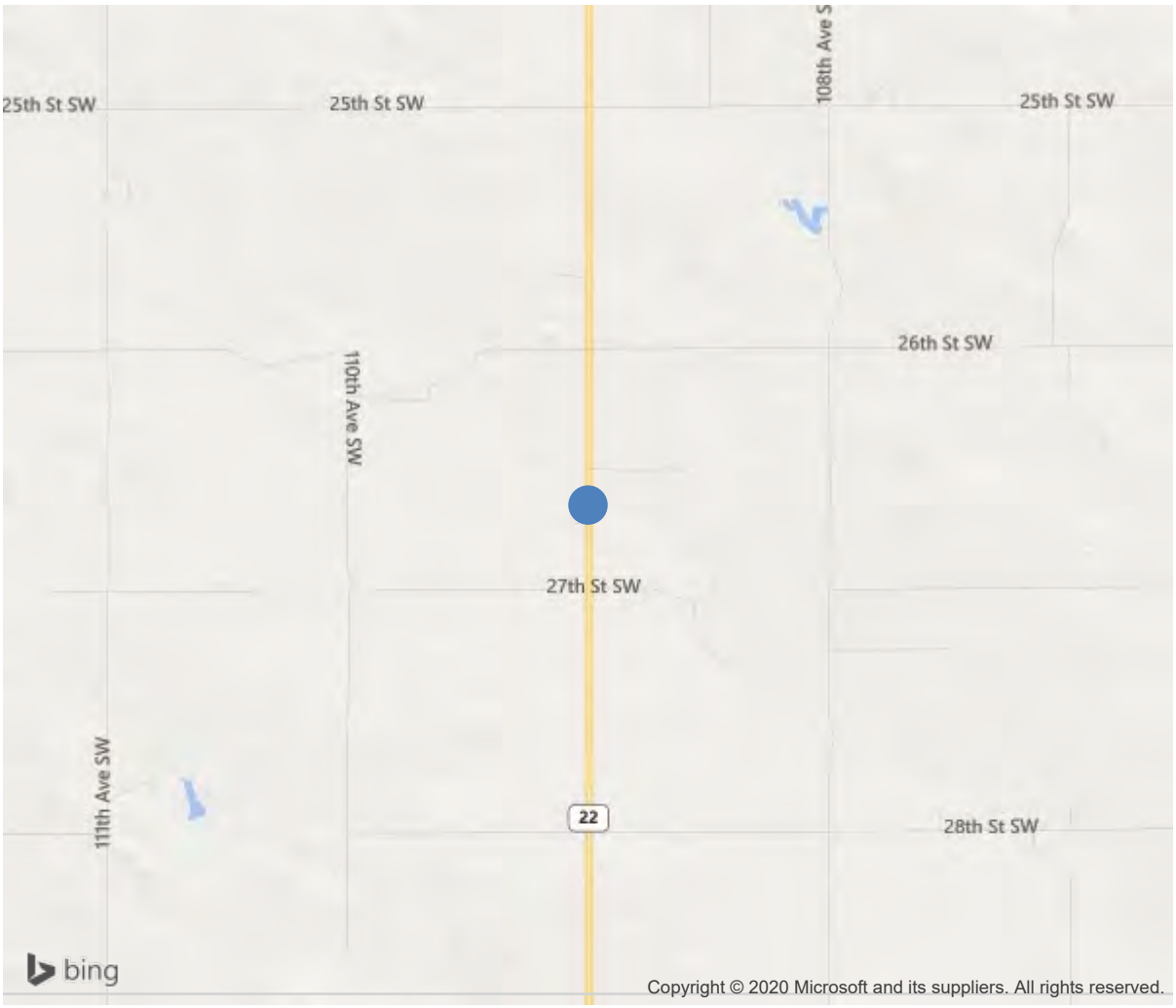
District 65, Dunn County

Owner: 1-State Highway Agency

Team Leader: Jake Mertz

Approved By: Travis McCloud

9 NORTH OF I-94



47.02938, -102.79989

NORTH Dakota | Transportation
Be Legendary.

Bridge #0022-081.376(Routine)
ND HIGHWAY 22 over RUSSIAN SPRING CREEK
Location: 9 NORTH OF I-94
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IDENTIFICATION	
(1) State Names	North Dakota
(8) Structure Number	0022-081.376
(5) Inventory Route	00022
(2) Highway Agency District	65
(3) County Code	Dunn, North Dakota
(4) Place Code	0
(6) Features Intersected	RUSSIAN SPRING CREEK
(7) Facility Carried	ND HIGHWAY 22
(9) Location	9 NORTH OF I-94
(11) Mile Point	81.359 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte	0000000000
(16) Latitude	47.02938
(17) Longitude	-102.79989
GPS X	211283.9
GPS Y	5215439
(98) Border Bridge State Code	-1
(99) Border Bridge Struct. No.	_
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	14
Material	1-Concrete
Type	4-Tee beam
(44) Approach Structure Type	00
Material	0-Other
Type	0-Other
(45) No. of Spans in Main Unit	1
(46) No. of Approach Spans	0
Culvert	
(107) Deck Structure Type	1-Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	4-Low slump Concrete
Type of Membrane	0-None
Type of Deck Protection	0-None
Deck overburden	1
AGE AND SERVICE	
(27) Year Built	1953
(106) Year Reconstructed	1986
(42) Type of Service	15
On	1-Highway
Under	5-Waterway
(28) Lane	
On	2
Under	0
(29) Average Daily Traffic	1740
(30) Year of ADT	2019
(109) Truck ADT	10 %
(19) Bypass, Detour Length	6 mi
(114) Future ADT	1508
(115) Year of Future ADT	2039
GEOMETRIC DATA	
(48) Length of Maximum Span	40 ft
(49) Structure Length	42 ft
(50) Curb or Sidewalk Width	
Left	0 ft
Right	0 ft
(51) Bridge Roadway Width Curb to Curb	40 ft
(52) Deck Width Out to Out	42.7 ft
(32) Approach Roadway Width (W/Shoulders)	40 ft
(33) Bridge Median	0-No median
(34) Skew	0 Deg
(35) Structure Flared	No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	39.7 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	0 ft
Ref:	
(55) Min Lat Underclear RT	99.9 ft
Ref:	
(56) Min Lat Underclear LT	0 ft

CLASSIFICATION	
(A-7) Agency Admin Area	1
(112) NBIS Bridge Length	Y
(104) Highway System	Non-NHS
(26) Functional Class	6-Rural Minor Arterial
(100) Defense Highway	0-The inventory route is not a S
(A16) TE Route	
(101) Parallel Structure	N-No parallel structure exists.
(102) Direction of Traffic	2 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0-N/A
(110) Designated National Network	0-The inventory route is not part of
(20) Toll	3-On free road. The structure is toll-
(21) Maintain	1-State Highway Agency
(22) Owner	1-State Highway Agency
(37) Historical Significance	5-Bridge is not eligible for the NRHP
CONDITION	
(58) Deck	7
(59) Superstructure	7
(60) Substructure	6
(61) Channel & Channel Protection	6
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	5-MS 18 / HS 20
(63) Operating Rating Method	1
(64) Operating Rating	72
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	43.1
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	7
(68) Deck Geometry	6
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	7
(72) Approach Roadway Alignment	7
(36) Traffic Safety Features	1111
A) Bridge Railings	1-Inspected feature meets currently a
B) Transitions	1-Inspected feature meets currently a
C) Approach Guardrail	1-Inspected feature meets currently a
D) Approach Guardrail Ends	1-Inspected feature meets currently a
(113) Scour Critical Bridges	8-Bridge foundations determined to be
APPROVED INSPECTIONS	
(90) Inspection Date	09/2020
(91) Frequency	24 Months
(92) Critical Feature Inspection	Req Freq. (Mon) Date
A: Fracture Critical Detail	No
B: Underwater Inspection	No
C: Other Special Inspection	No
NAVIGATION DATA	
(38) Navigation Control	0-No navigation control on water
(111) Pier Protection	-
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clr	ft
(40) Navigation Horizontal Clearance	0 ft
AGENCY ITEMS	
(A-21) Fedaid Project no.	BRF-5-022(24)073
(A-14) Chaining Date	08/29/2018
(A-15) Delamination Pct	6.8

Inspection Team Lead: Jake Mertz

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	1679	1669	10	0	0
1130	Cracking (RC and Other)	SF	10	0	10	0	0
510	Wearing Surfaces	SF	1679	1669	10	0	0
3220	Crack (Wearing Surface)	SF	10	0	10	0	0

(12-1130)

There are two cracks in the Northbound lane that are diagonal and at the north and south ends of the structure. These cracks are 0.014 in width. 1September2020

(12-510-3220)

There are two cracks in the Northbound lane that are diagonal and at the north and south ends of the structure. These cracks are 0.014 in width. 1September2020

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
110	Reinforced Concrete Open Girder/Beam	LF	246	242	4	0	0
1080	Delamination/Spall/Patched Area	LF	4	0	4	0	0

(110)

beams 2 &6 have small spalls 6x3"x1/2" on bottom - 6/5/2019

(110-1080)

beams 2&6 have small spalls 6x3x1/2". - 6/5/2019

The E2 beam has a spall approximately 5 inches by 3 inches in size. This is located approximately 15 feet to the North of the South abutment. The W2 beam has 3 spalls that are 6 inches by 6 inches, 3 inches by 3 inches and 1 foot by 4 inches. These are located respectively at 20 feet, 18 feet and 5 feet to the South of the North abutment. 1September2020

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
215	Reinforced Concrete Abutment	LF	85	69	16	0	0
1120	Efflorescence/Rust Staining	LF	6	0	6	0	0
1130	Cracking (RC and Other)	LF	10	0	10	0	0

(215)

minor cracking on backwalls on both abutments. - 6/5/2019

(215-1120)

staining present at the cracks on the abutments - 6/5/2019

(215-1130)

minor cracking both backwalls - 6/5/2019

The North abutment has approximately 5 cracks that average approximately 0.010 in width. The South abutment has approximately 5 cracks that range from approximately 0.004 to 0.006 inn width. 1September2020

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
321	Reinforced Concrete Approach Slab	SF	1600	1600	0	0	0

(321)

approach slabs covered by asphalt. minor spalling where approach slab and bridge meet. perforated drain tile added 2002 at end of

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
app slab. - 6/5/2019							
331	Reinforced Concrete Bridge Railing	LF	85	80	5	0	0
1130	Cracking (RC and Other)	LF	5	0	5	0	0
(331-1130)							
minor cracking on construction joints on bridge rail. - 6/5/2019							
8401	Wings	EA	4	3	1	0	0
1080	Delamination/Spall/Patched Area	EA	1	0	1	0	0
(8401)							
hairline cracking on the wings where they tie into abutments - 6/5/2019							
(8401-1080)							
The Southwest wing has a 5 inch by 5 inch spall. 1September2020							

Inspection Comments

10/19/2009 - Approach slabs covered by asphalt.

NBI Remarks: Minor cracking and spalling on construction joints on brige rail.
Minor cracking on backwlls on both abutments.
Also some staining on backwall.
Minor spalling where approach slab and bridge tie.
Perforated drain tile added 2002 at end of approach slab.
10/22/2013 - Curb and Gutter added along with new guardrail in 2013 construction.
10/22/2013 - Channel Profile completed.
10/22/2013 - Bridge delamination done1/22/2013. Delamination 5.3%
9/11/17 - Channel profile completed.
Beams 2 & 6 have small spalls 6"x3"x1/2" on bottom sides.
6-5-19- se curb cracking some and spall at barrier, nw curb at bridge spall - 6/5/2019

Channel Profile

The flow of waterway is considered: West to East

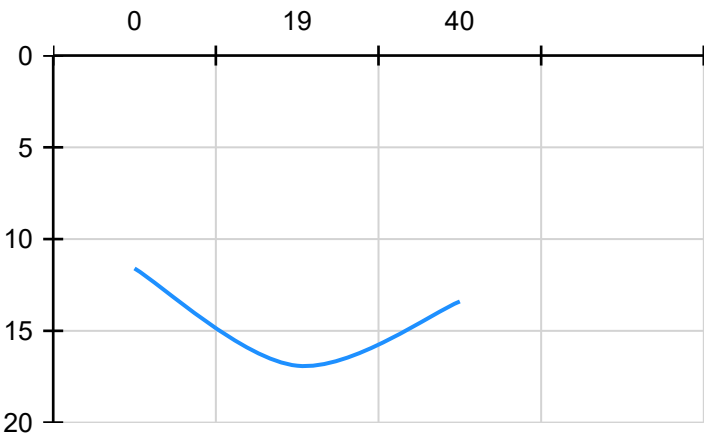
All soundings taken from: Top rail N to S

Top of water:

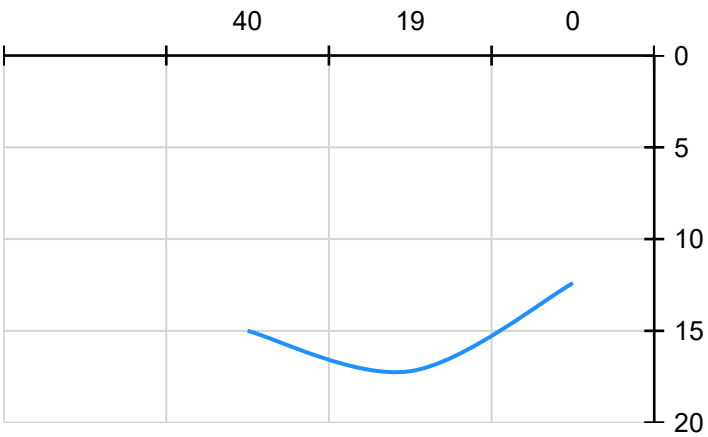
Bottom of Beam:

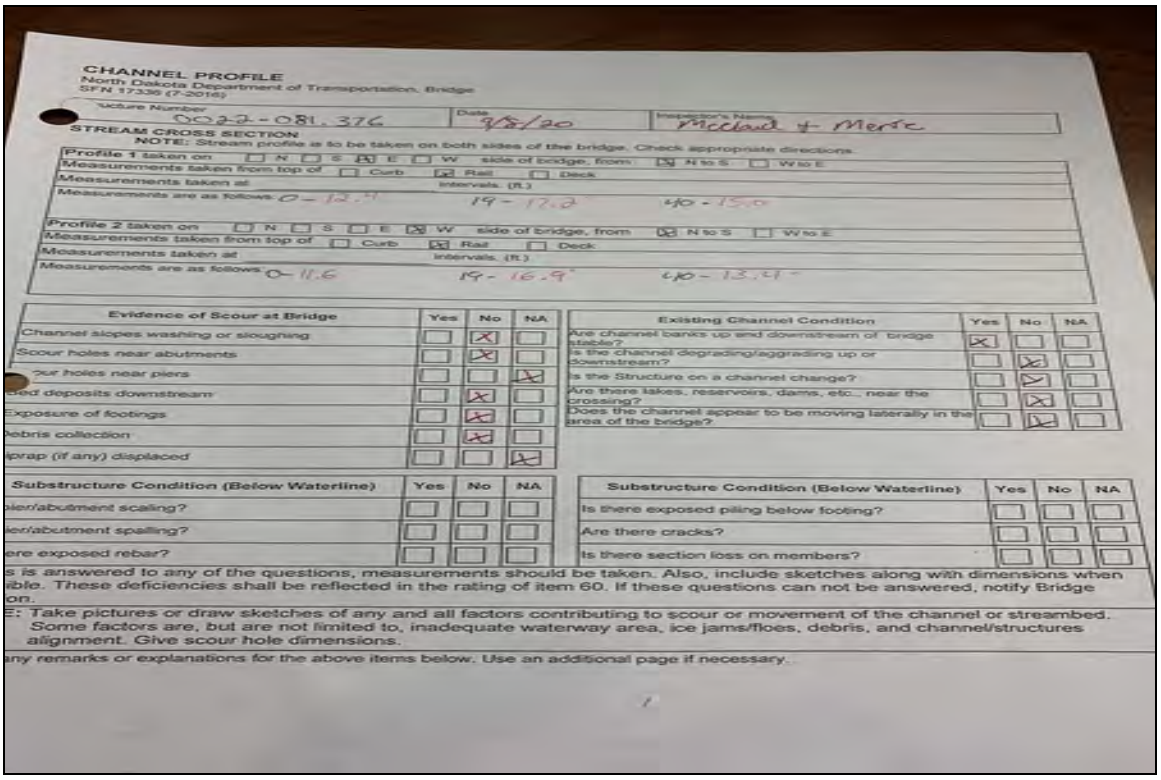
Station	Distance (ft)	DS Measurement (ft)	US Measurement (ft)
1	0	12.4	11.6
2	19	17.2	16.9
3	40	15	13.4
4			
5			

UpStream Measurements



DownStream Measurements





CHANNEL PROFILE
North Dakota Department of Transportation, Bridge
SFN 17336 (7-2016)

Structure Number: 0022-081.376 | Date: 9/8/20 | Inspector's Name: McCaul + Merle

STREAM CROSS SECTION
NOTE: Stream profile is to be taken on both sides of the bridge. Check appropriate directions.

Profile 1 taken on ☐ N ☐ S ☒ E ☐ W side of bridge, from ☒ N to S ☐ W to E
Measurements taken from top of ☐ Curb ☒ Rail ☐ Deck
Measurements taken at intervals. (ft.)
Measurements are as follows: 0 - 12.4 | 19 - 17.2 | 40 - 15.0

Profile 2 taken on ☐ N ☐ S ☐ E ☒ W side of bridge, from ☒ N to S ☐ W to E
Measurements taken from top of ☐ Curb ☒ Rail ☐ Deck
Measurements taken at intervals. (ft.)
Measurements are as follows: 0 - 11.6 | 19 - 16.9 | 40 - 13.4

Evidence of Scour at Bridge	Yes	No	NA
Channel slopes washing or sloughing	☐	☒	☐
Scour holes near abutments	☐	☒	☐
Scour holes near piers	☐	☐	☒
Fill deposits downstream	☐	☒	☐
Exposure of footings	☐	☒	☐
Debris collection	☐	☒	☐
Riprap (if any) displaced	☐	☐	☒

Existing Channel Condition	Yes	No	NA
Are channel banks up and downstream of bridge stable?	☒	☐	☐
Is the channel degrading/aggrading up or downstream?	☐	☒	☐
Is the Structure on a channel change?	☐	☒	☐
Are there lakes, reservoirs, dams, etc., near the crossing?	☐	☒	☐
Does the channel appear to be moving laterally in the area of the bridge?	☐	☒	☐

Substructure Condition (Below Waterline)	Yes	No	NA
Pier/abutment scaling?	☐	☐	☐
Pier/abutment spalling?	☐	☐	☐
Were exposed rebar?	☐	☐	☐

Substructure Condition (Below Waterline)	Yes	No	NA
Is there exposed piling below footing?	☐	☐	☐
Are there cracks?	☐	☐	☐
Is there section loss on members?	☐	☐	☐

If is answered to any of the questions, measurements should be taken. Also, include sketches along with dimensions when possible. These deficiencies shall be reflected in the rating of item 60. If these questions can not be answered, notify Bridge Section.

NOTE: Take pictures or draw sketches of any and all factors contributing to scour or movement of the channel or streambed. Some factors are, but are not limited to, inadequate waterway area, ice jams/floes, debris, and channel/structures alignment. Give scour hole dimensions.

Any remarks or explanations for the above items below. Use an additional page if necessary.

Channel profile

South approach slab covered with asphalt

North bound lane deck crack .014

North bound lane deck crack .014

North approach slab coved with asphalt

North bound deck lane crack .014

North bound deck lane crack .014

North abutment crack with efflorescence

North abutment crack with efflorescence

North abutment crack .010

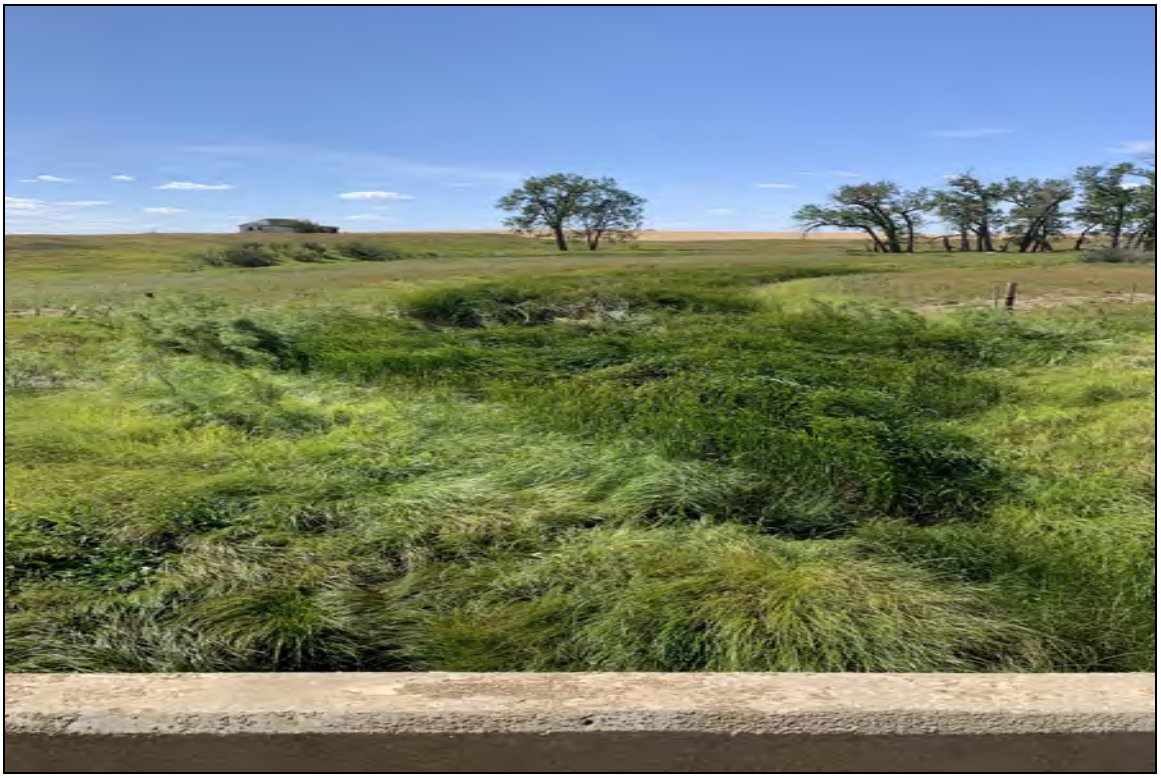
South abutment

East channel looking east

W2 beam spalls

Looking south

Looking north



Looking west

Looking east

North abutment

E2 beam east face 5”x3”

South abutment crack .004

West channel looking west

South abutment crack.oo6

SW wing minor spall 5”x5”

South abutment west end cracks under backwall