

DISCLAIMER NOTE: This map is for land use planning purposes only.

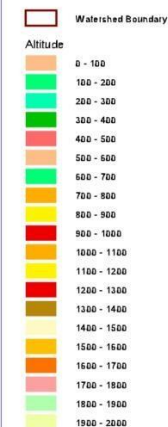
CITY
OF
NAGA
REGION V






Scale: 1:95000

ALTITUDINAL MAP

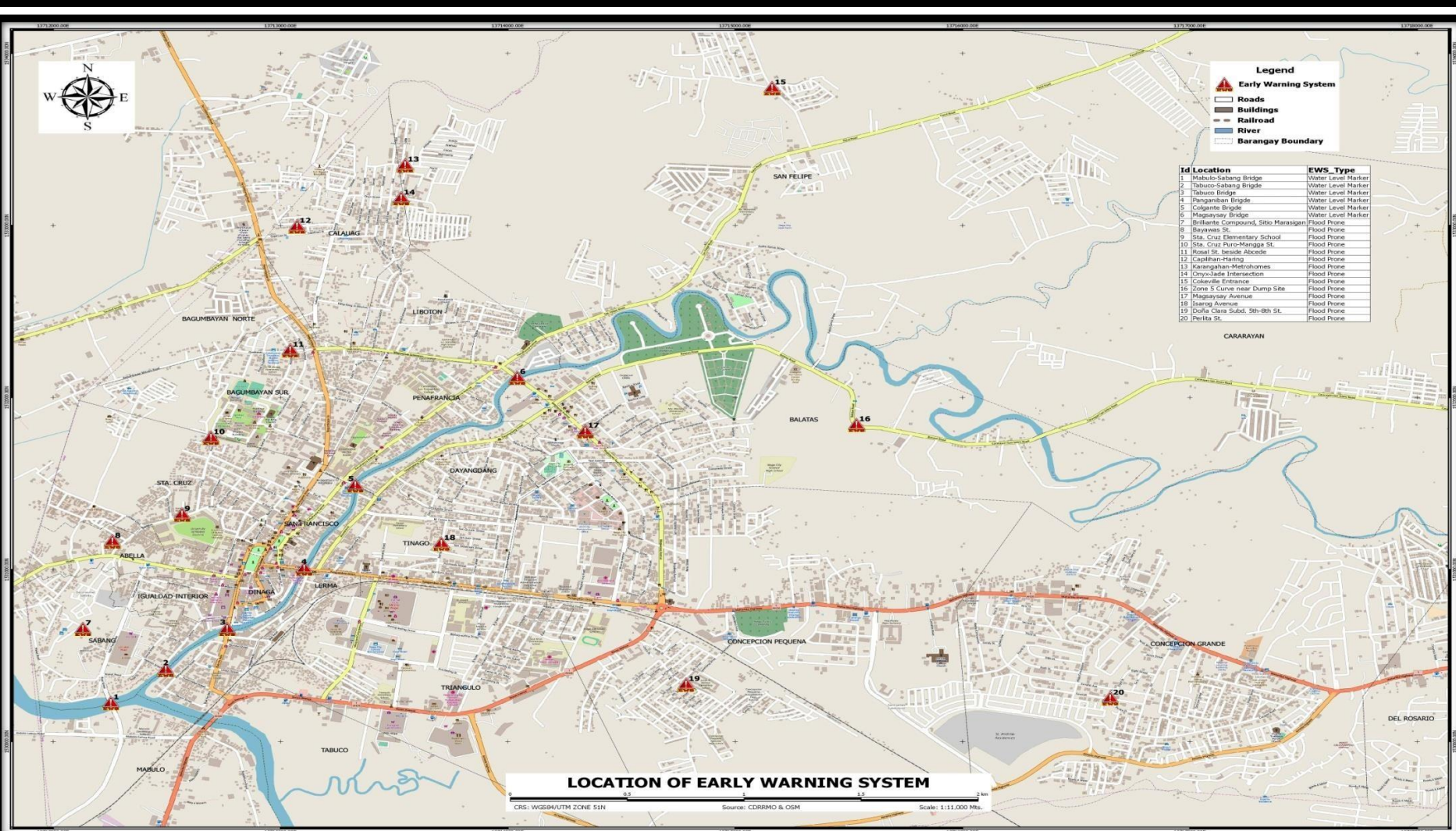
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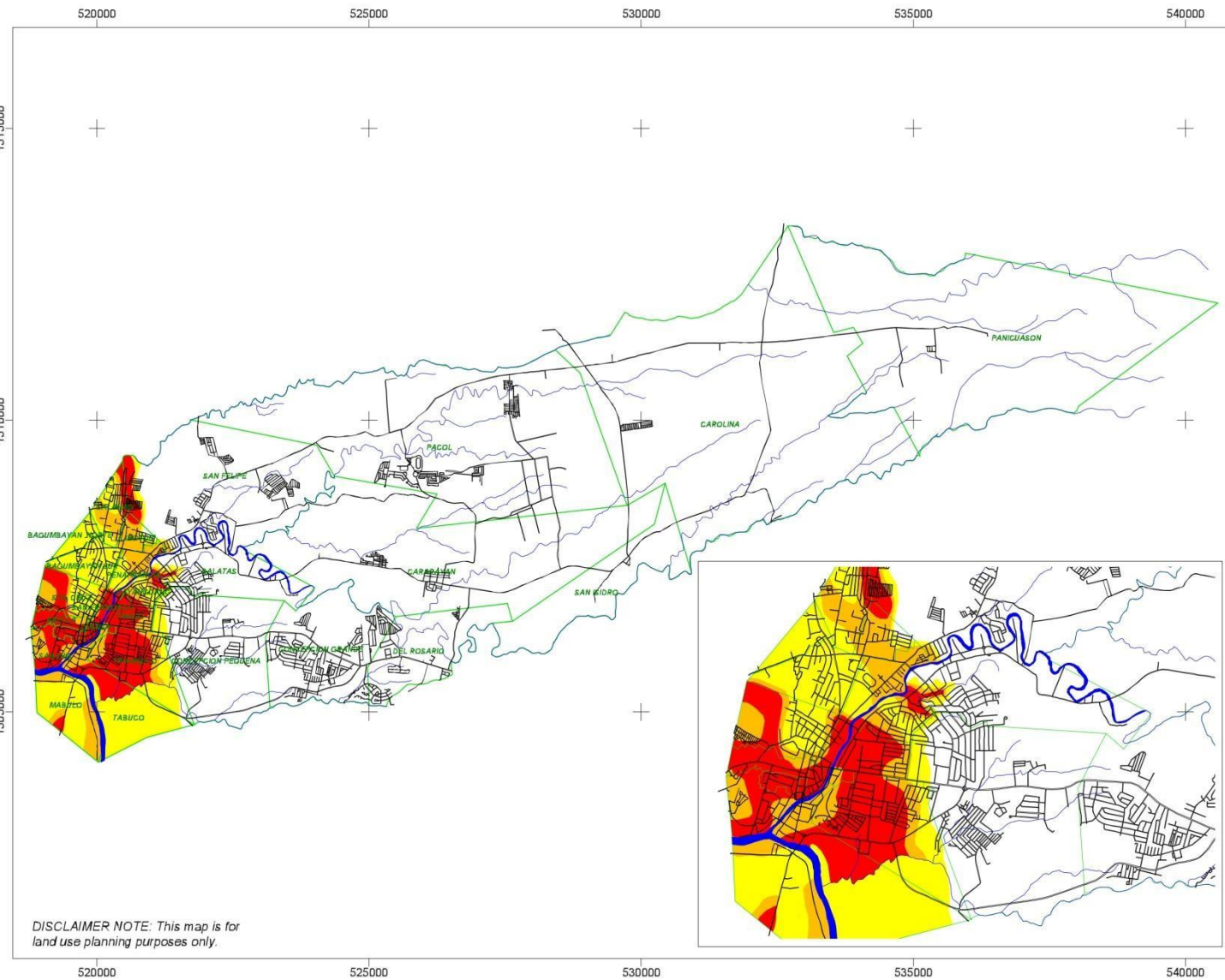


 Creeks
 Rivers
 Roads
 Barangay Boundaries

A PROJECT
OF THE
LOCAL GOVERNMENT OF NAGA

**CITY DISASTER RISK REDUCTION AND
MANAGEMENT OFFICE**
2017





CITY
OF
NAGA
REGION V



1000 0 1000 2000 3000 Meters

Scale: 1:90000

FLOOD HAZARD MAP
For 5 Year Return Period

LEGEND:

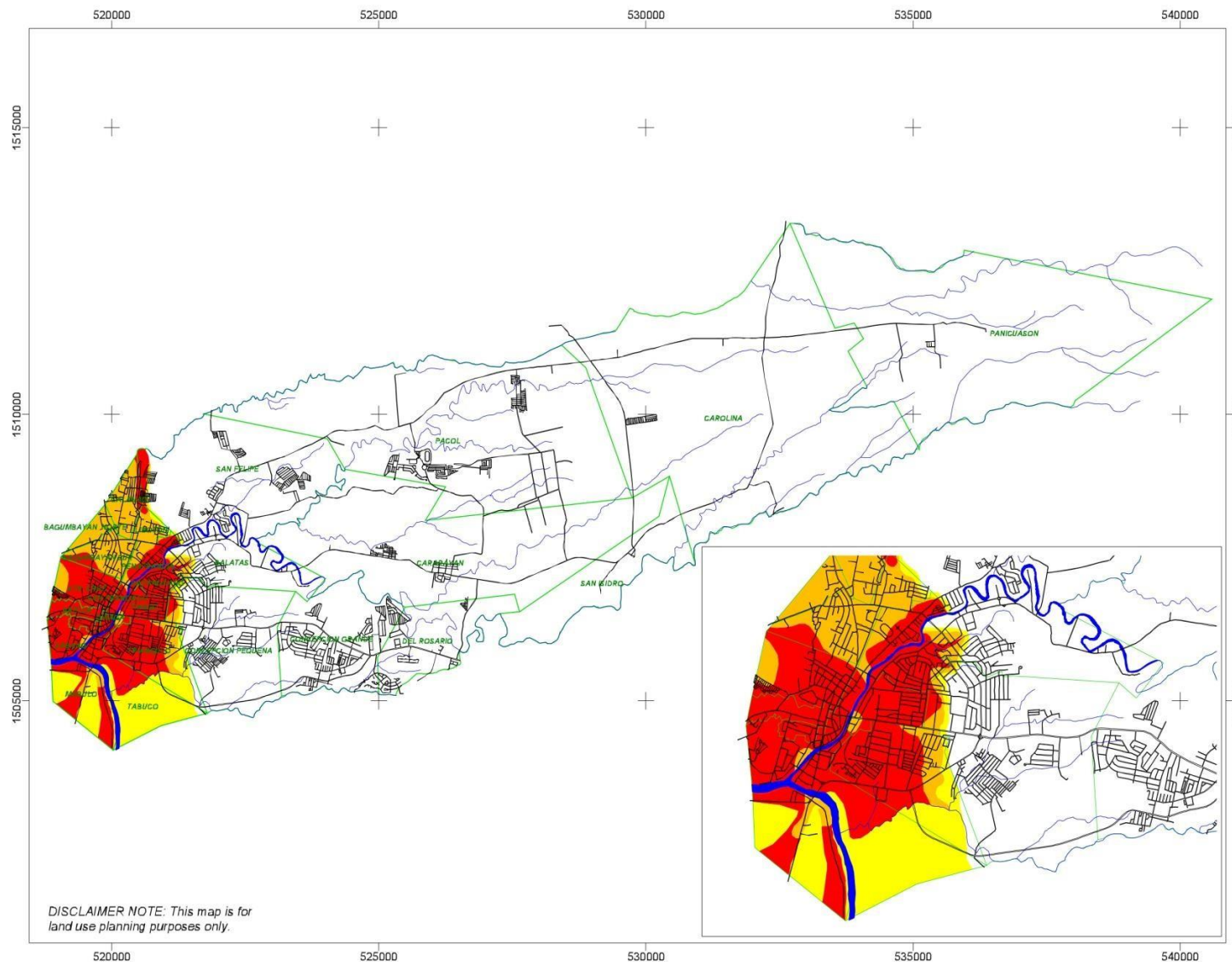
- Low Risk Areas
- Medium Risk Areas
- High Risk Areas

- Creeks
- Rivers
- Roads
- Barangay Boundaries

A PROJECT
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**CITY DISASTER RISK REDUCTION AND
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2017



CITY
OF
NAGA
REGION V



1000 0 1000 2000 3000 Meters

Scale: 1:90000

FLOOD HAZARD MAP
For 10 Year Return Period

LEGEND:

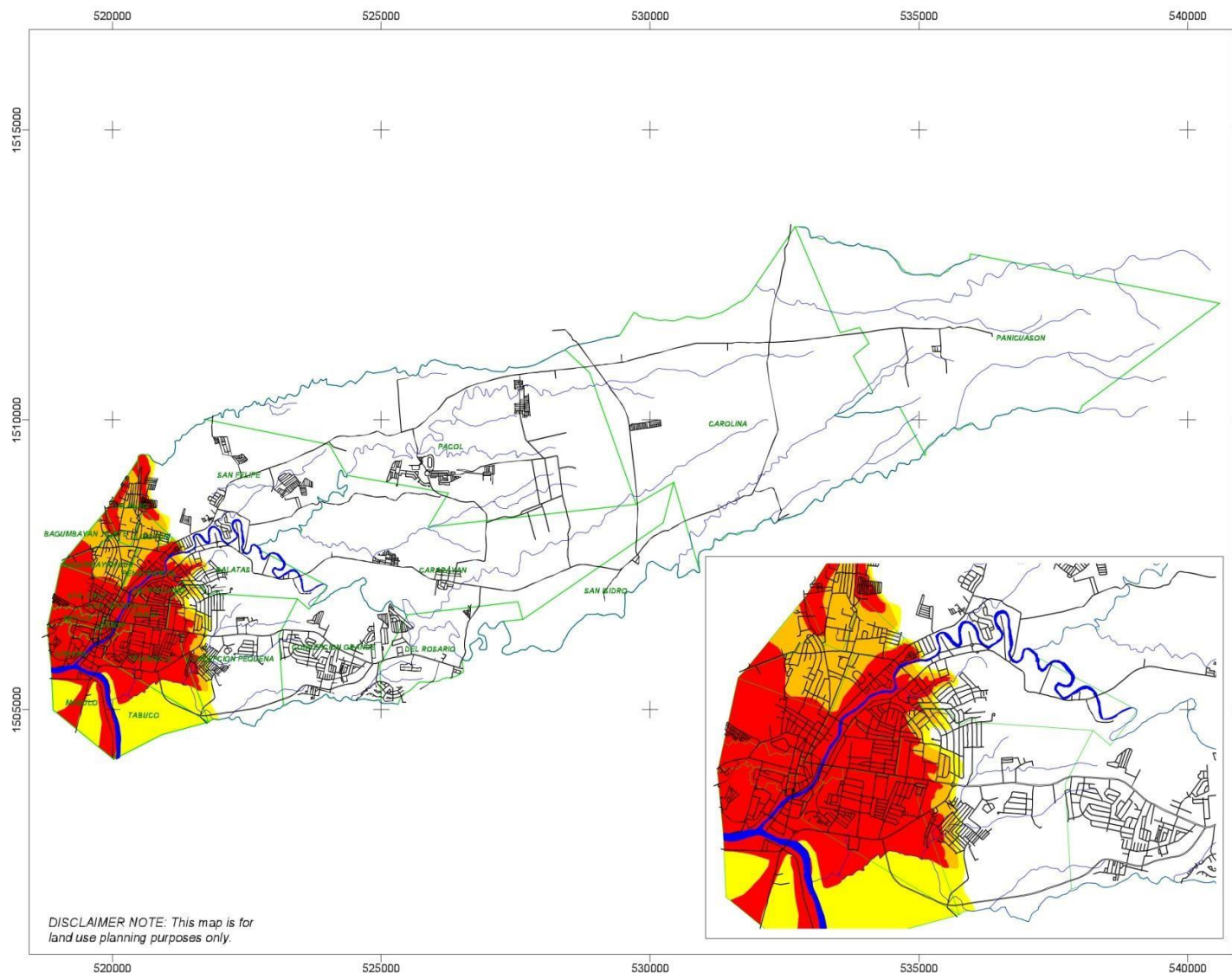
- Low Risk Areas
- Moderate Risk Areas
- High Risk Areas

- Creeks
- Rivers
- Roads
- Barangay Boundaries

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**CITY DISASTER RISK REDUCTION AND
MANAGEMENT OFFICE**
2017



CITY
OF
NAGA
REGION V



1000 0 1000 2000 3000 Meters

Scale: 1:90000

FLOOD HAZARD MAP
For 20 Year Return Period

LEGEND:

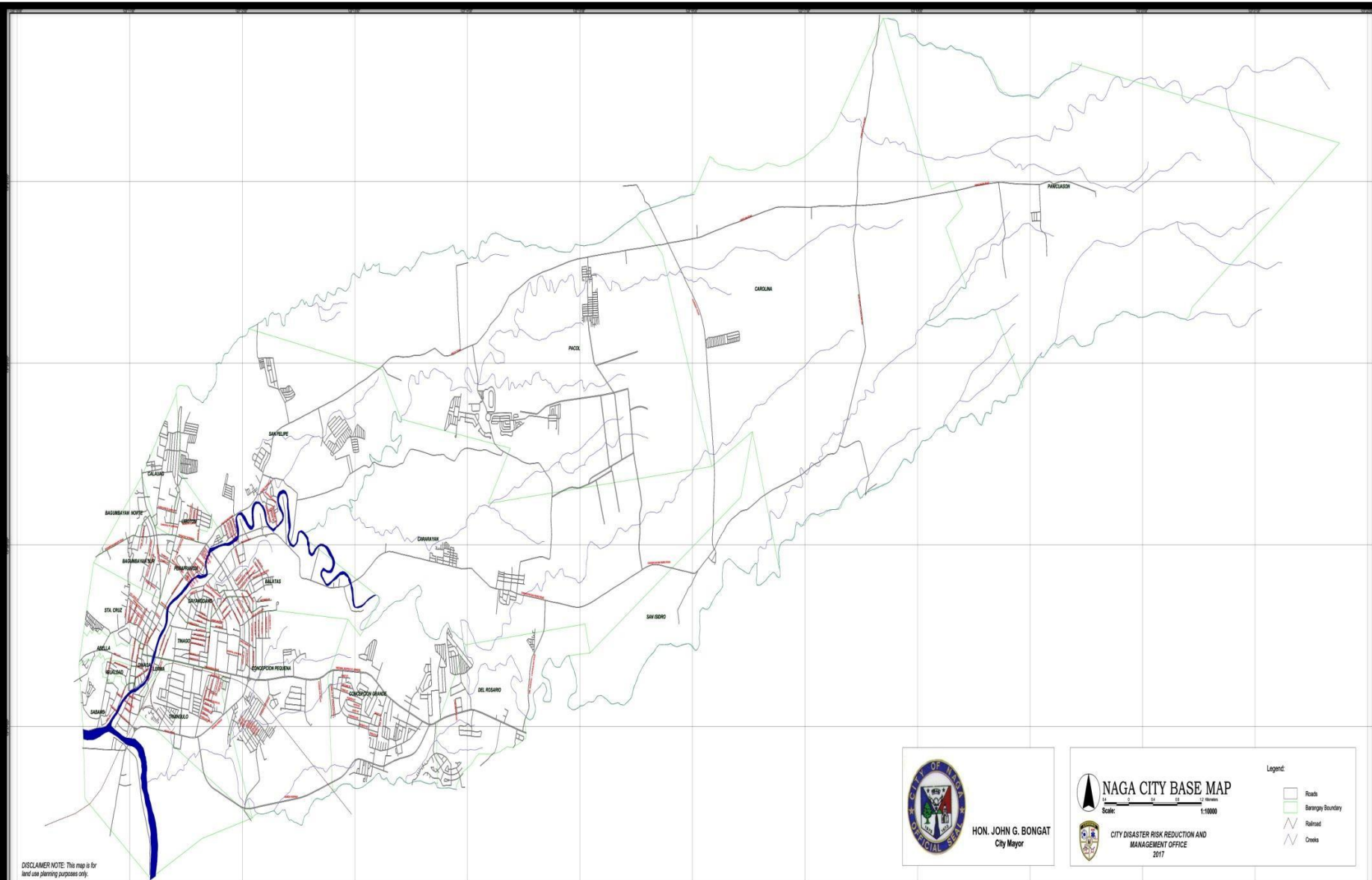
- Low Risk Areas
- Medium Risk Areas
- High Risk Areas

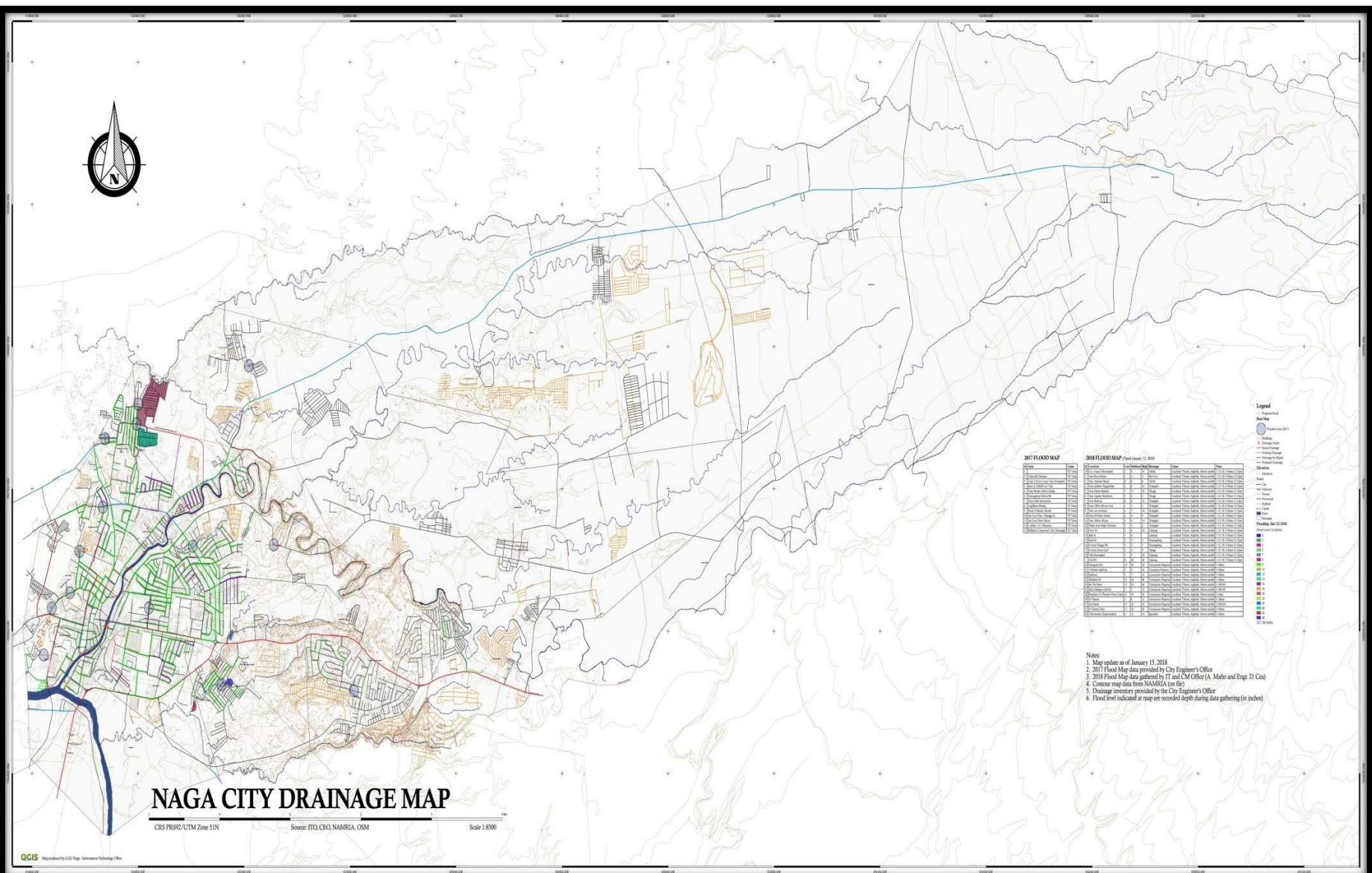
- Creeks
- Rivers
- Roads
- Barangay Boundaries

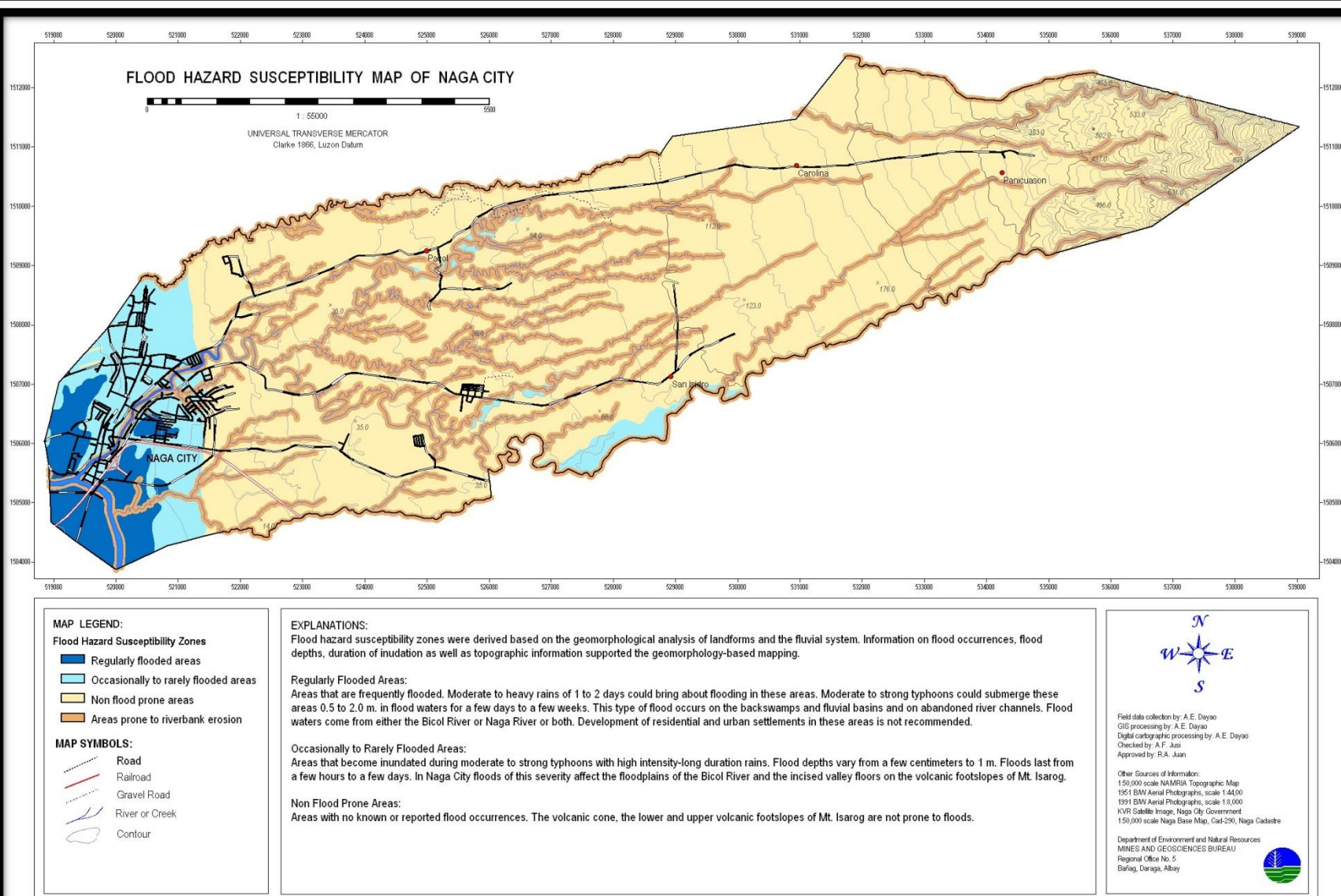
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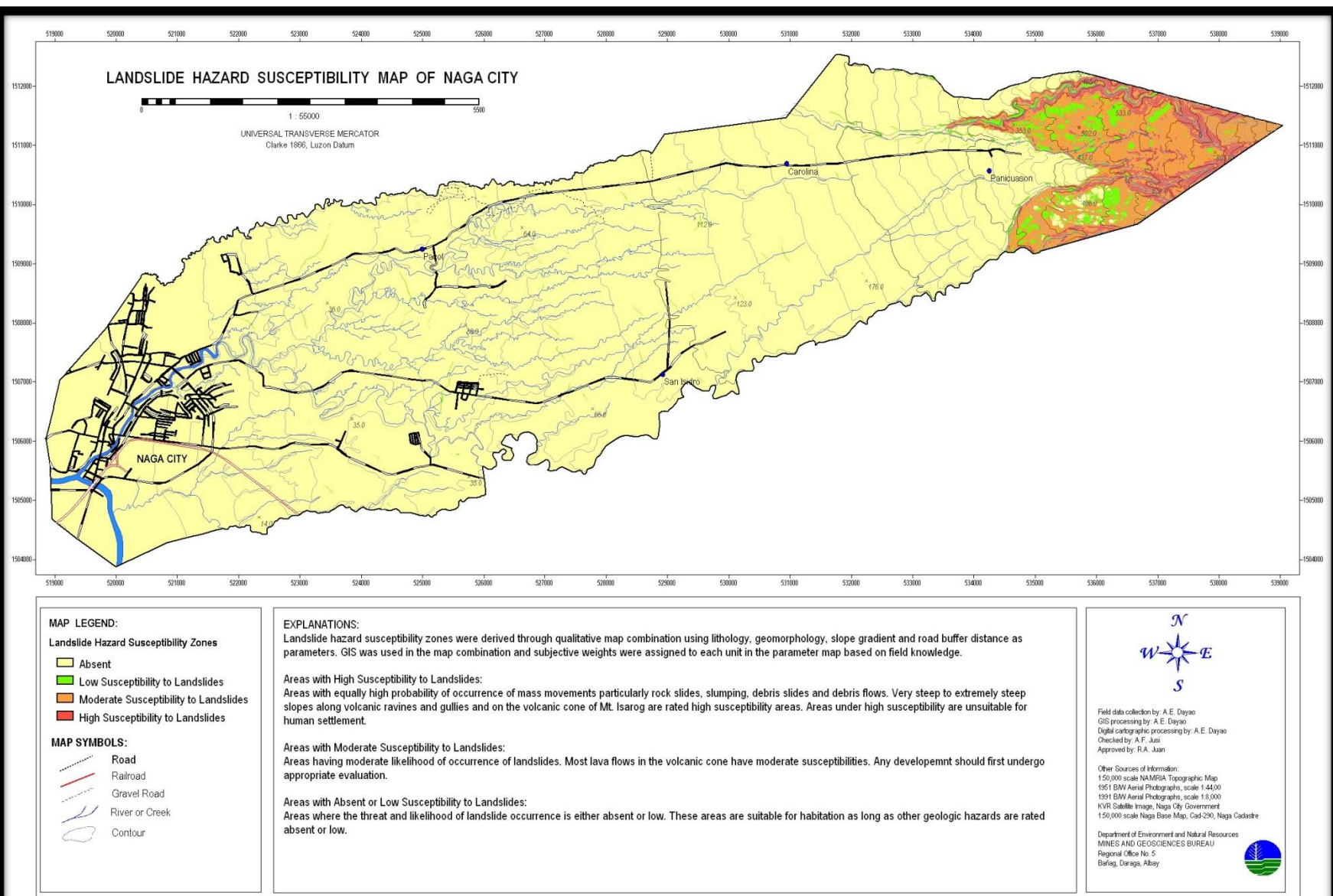


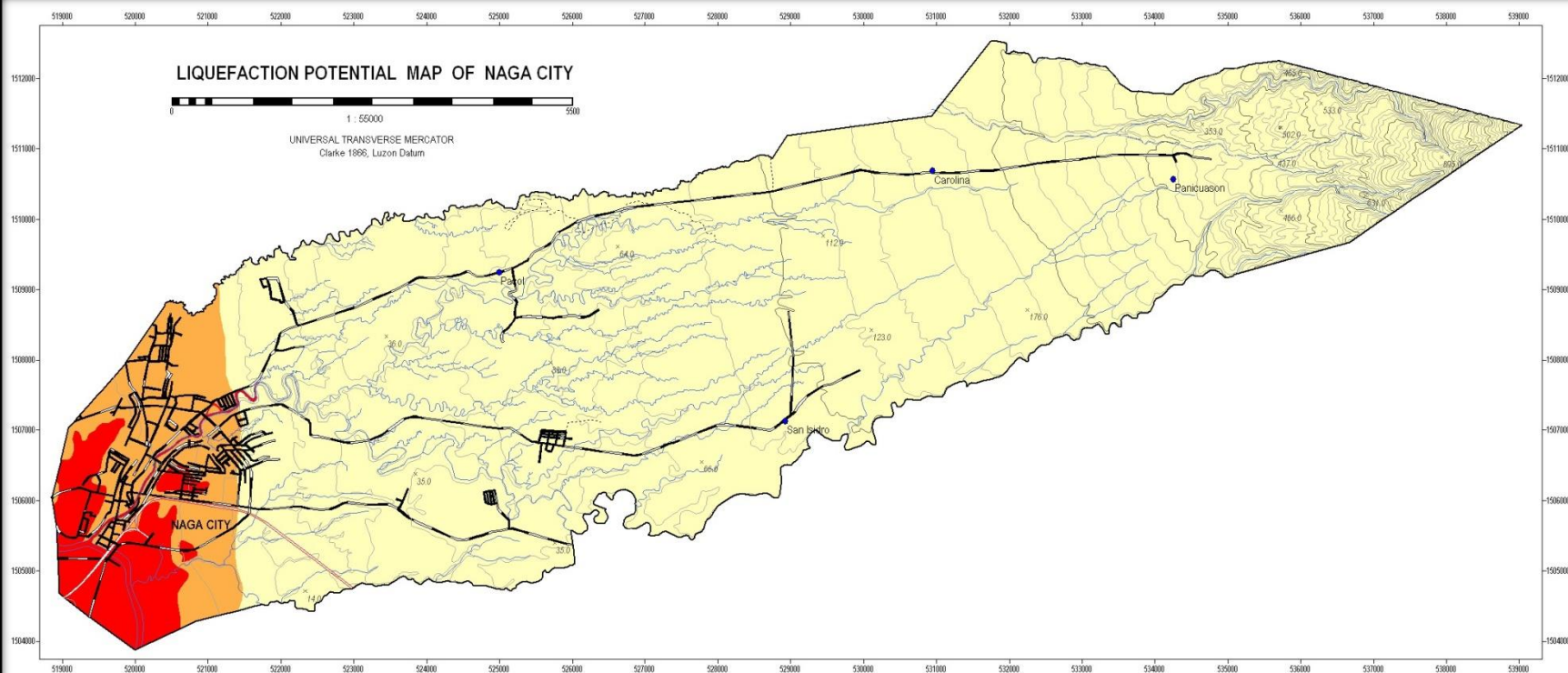
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2017











MAP LEGEND:

Liquefaction Potential Zones

- Areas where liquefaction is likely
- Areas where liquefaction is possible
- Areas where liquefaction is not likely

MAP SYMBOLS:

- Road
- Railroad
- Gravel Road
- River or Creek
- Contour

EXPLANATIONS:

There are no reported liquefaction occurrences in Naga City based on several interviews. However zones of different liquefaction potential were derived based on the geomorphological analysis of the city following criteria previously made by Iwasaki and Yasuda.

Areas where Liquefaction is Likely:

Areas where liquefaction is likely include the riverbed of Bicol River, abandoned river beds and meanders, backswamps and alluvial basins. Liquefaction is likely if a big earthquake occurs with epicenter close to Naga City. These areas are unsuitable for urban development without proper earthquake engineering intervention. Multi-storey buildings should be required of geotechnical studies addressing or mitigating effects of liquefaction.

Areas where Liquefaction is Possible:

The floodplain of the Bicol River and the fluvial ridges are areas where liquefaction is possible. Buildings having 4 storeys and more should be required of geotechnical studies.

Areas where Liquefaction is Unlikely:

Areas where the likelihood of liquefaction is unlikely. Most parts of Naga City are not prone to liquefaction because of the underlying compacted tuffs and agglomerates of Mt. Isarog.

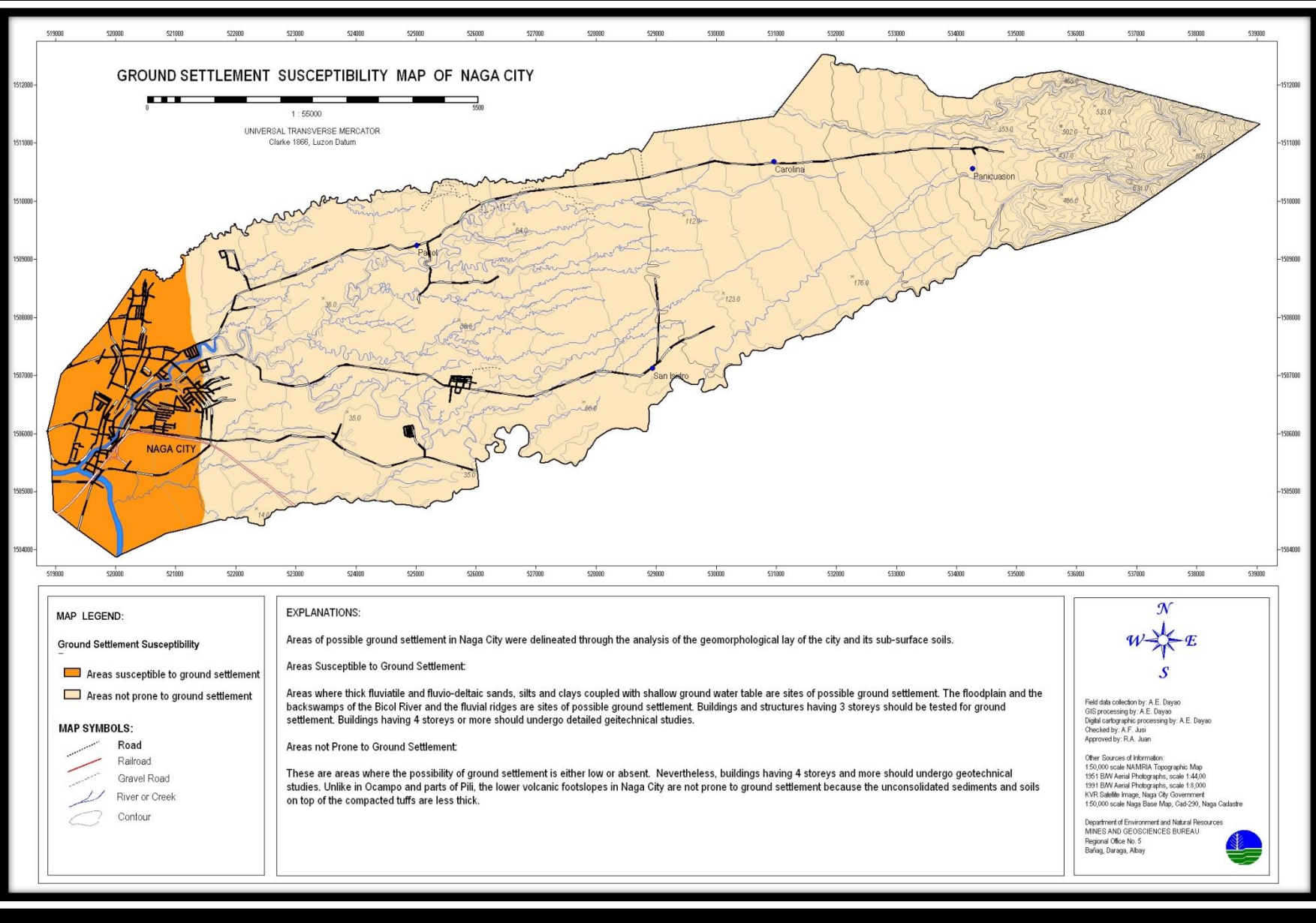


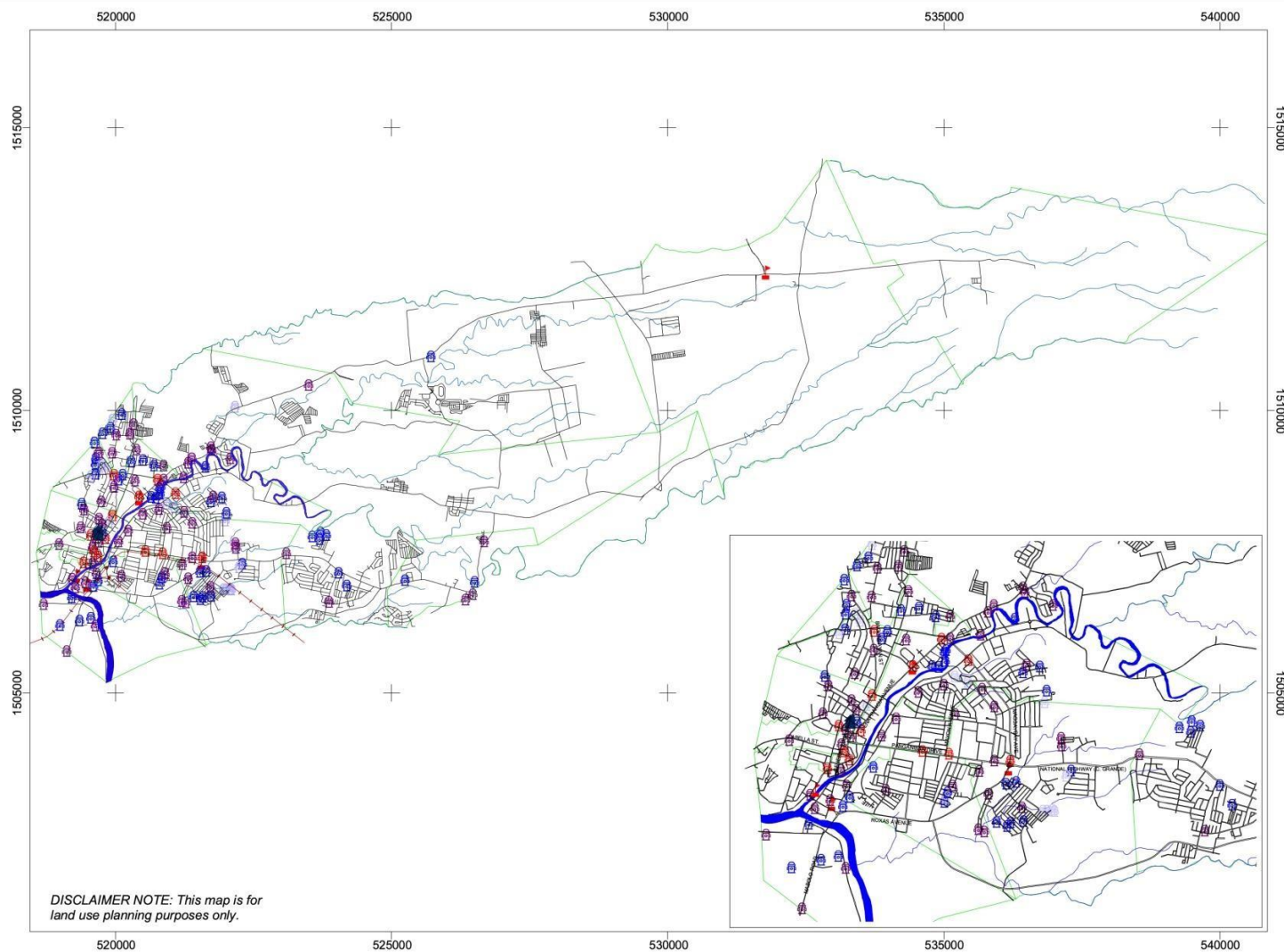
Field data collection by: A.E. Dayao
GIS processing by: A.E. Dayao
Digital cartographic processing by: A.E. Dayao
Checked by: A.F. Jusi
Approved by: R.A. Juan

Other Sources of Information:
1:50,000 scale NAMRIA Topographic Map
1951 BW Aerial Photographs, scale 1:44,000
1991 BW Aerial Photographs, scale 1:5,000
NVR Satellite Image, Naga City Government
1:50,000 scale Naga Base Map, Cad-290, Naga Cadastre

Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
Regional Office No. 5
Bairag, Daraga, Albay







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CITY OF **NAGA** REGION V



1000 0 1000 2000 3000 Meters





Scale: 1:90000

PROTECTIVE SERVICES FACILITIES MAP

LEGEND:

-  Police Headquarters
-  Police Sub-Stations

Fire Hydrants

-  Blow-Off Type
-  Commercial Type
-  Residential Type
-  Stand Pipe

-  Creeks
-  Rivers
-  Roads
-  Barangay Boundaries



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2017

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1000 0 1000 2000 3000 Meters

Scale: 1:90000

**WATER FACILITIES
MAP**

LEGEND:

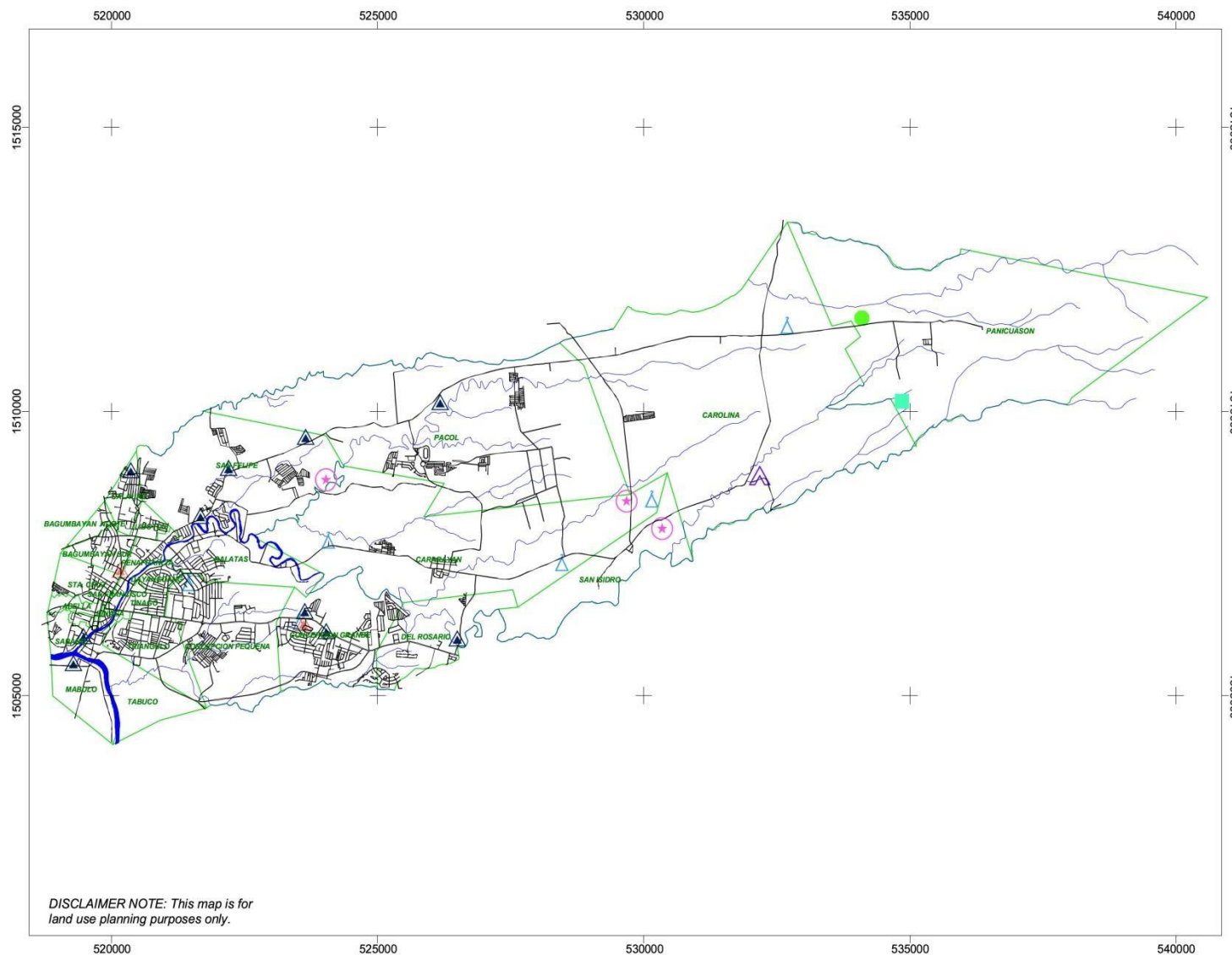
- PROPOSED DAM
- PROPOSED MNWD WELL
- PUMPING STATION
- PUMPING STATION (NON-OPERATIONAL)
- PROPOSED RESERVOIR SITE
- PROPOSED SANITARY LANDFILL
- PROPOSED TREATMENT PLANT

- Creeks
- Rivers
- Roads
- Barangay Boundaries

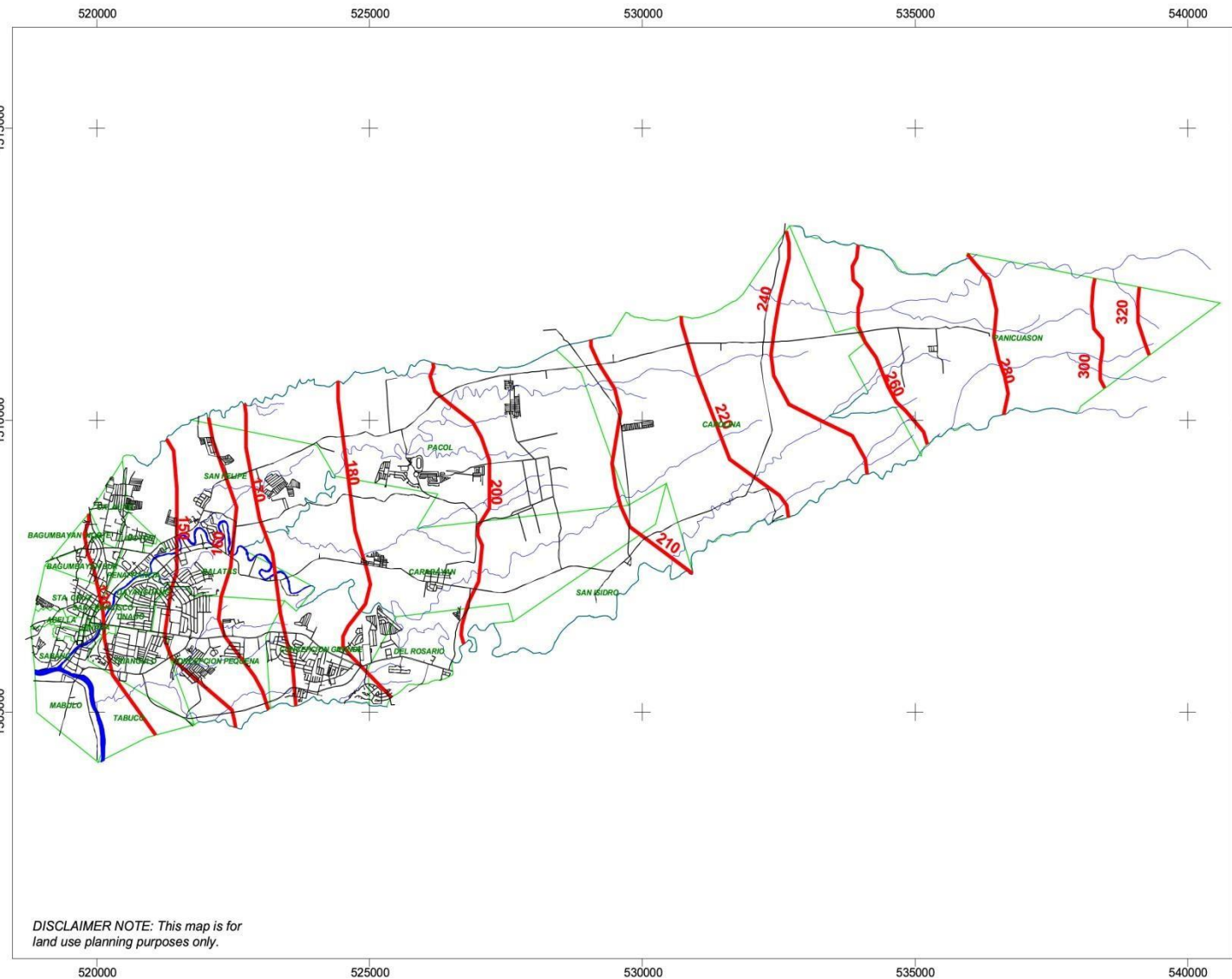
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CITY
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1000 0 1000 2000 3000 Meters

Scale: 1:90000

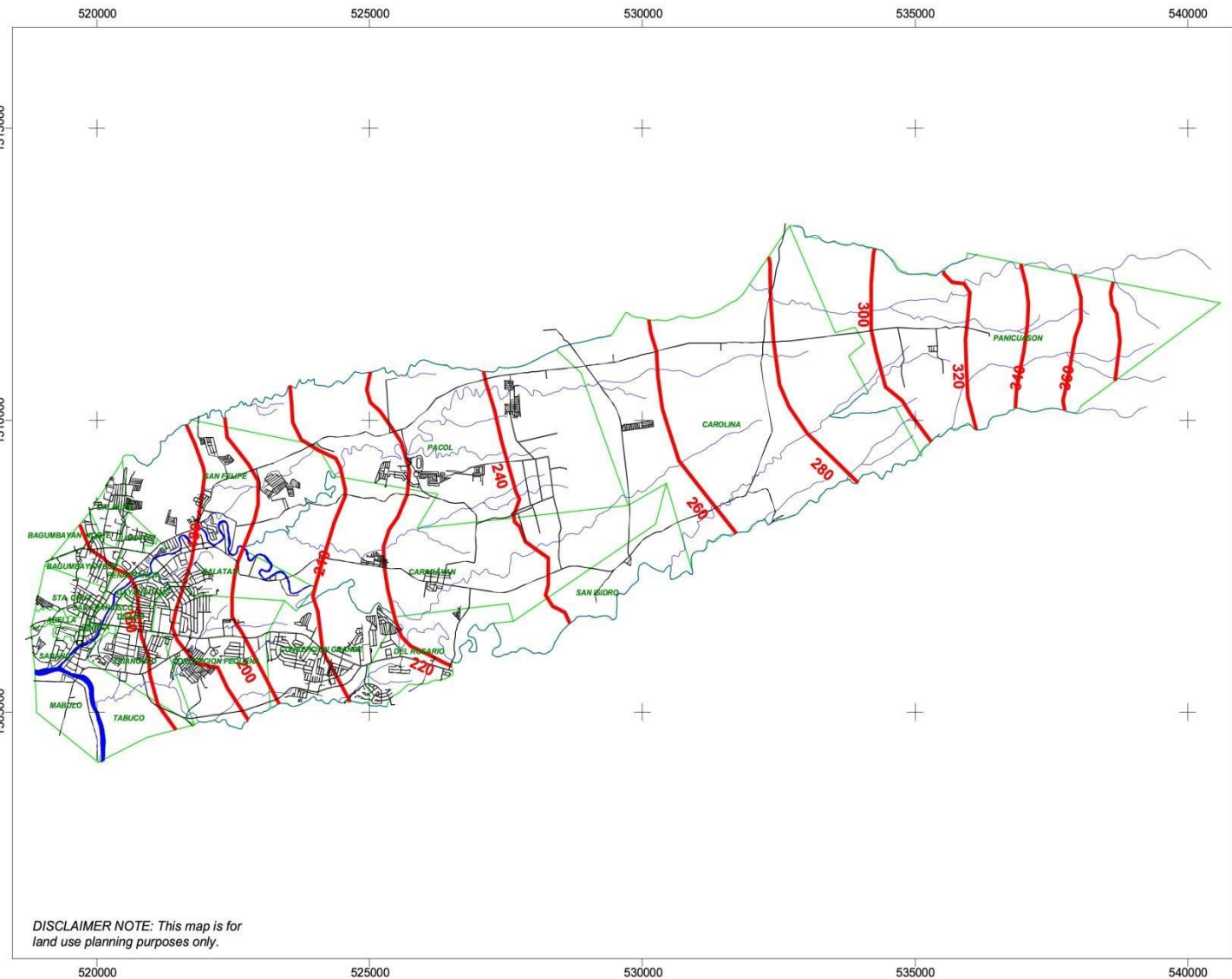
WIND HAZARD MAP
For 10 Year Return Period

LEGEND:

 Max Wind Gust Isolines in KPH

 Creeks
 Rivers
 Roads
 Barangay Boundaries

A PROJECT
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LOCAL GOVERNMENT OF NAGA
 CITY DISASTER RISK REDUCTION AND
MANAGEMENT OFFICE
2017



CITY
OF
NAGA
REGION V



1000 0 1000 2000 3000 Meters

Scale: 1:90000

WIND HAZARD MAP
For 20 Year Return Period

LEGEND:



Max Wind Gust Isolines in KPH

- Creeks
- Rivers
- Roads
- Barangay Boundaries



A PROJECT
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LOCAL GOVERNMENT OF NAGA

**CITY DISASTER RISK REDUCTION AND
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2017



PHYSICAL RISK MAP FOR HIGH FLOOD SUSCEPTIBILITY OF BGY. SABANG, NAGA CITY



LEGEND :

RISK RATING

0.000000	Absent
0.016562 - 0.028125	Low
0.029375 - 0.039063	Moderate
0.040625 - 0.062187	High
0.065312 - 0.096875	Very High

SYMBOLS :

Barangay Boundary	Major_Riverbed
Roads	



30 15 0 30 60 90 120
Meters

Spheroid : Clark 1866
Projection : Universal Transverse Mercator
Datum : Luzon Philippines



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Rawis, Legazpi City

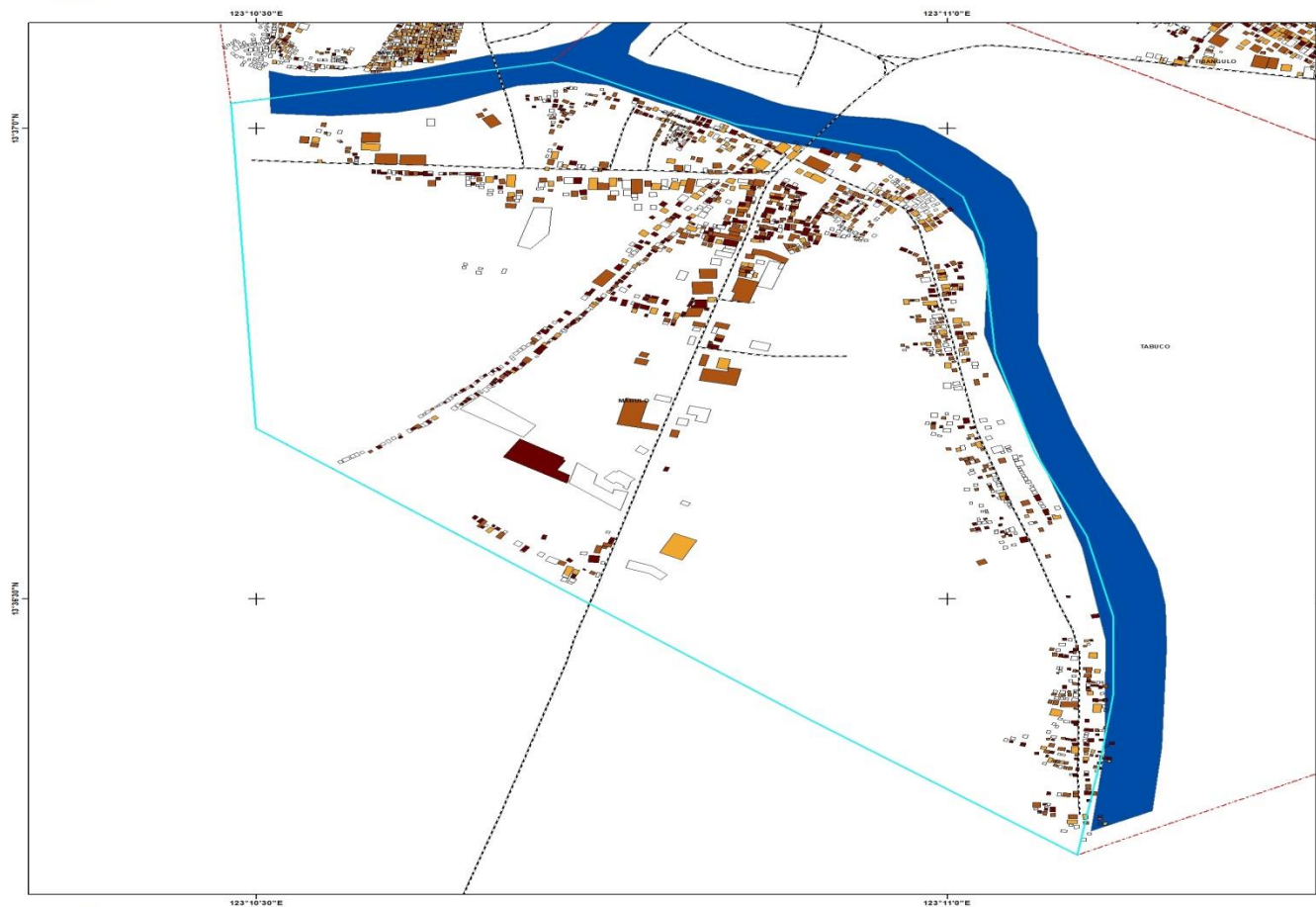
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"No Risk" are those houses or buildings with no available data and information about the particular parameter. Also, it could also possibly mean that the building was not actually assessed due to its rural location. Validation of the data could be done by the local government unit to incorporate the data later on and readjust the value.

Field Data Gathering : Mines and Geosciences Bureau - RO5
Geomorphological Interpretation : Mines and Geosciences Bureau - RO5
Satellite Image Interpretation : Mines and Geosciences Bureau - RO5
GIS Processing : Mines and Geosciences Bureau - RO5
Cartographic Processing : Mines and Geosciences Bureau - RO5
Data Sources : Google Earth Satellite Images,
Mines and Geosciences Bureau RO5 Hazard Maps
DENR- Lands Management Services



PHYSICAL RISK MAP FOR HIGH FLOOD SUSCEPTIBILITY OF BGY. MABOLO, NAGA CITY



LEGEND :

RISK RATING		
0.000000	Absent	
0.016562 - 0.028125	Low	
0.029375 - 0.039063	Moderate	
0.040625 - 0.062187	High	
0.065312 - 0.096875	Very High	

SYMBOLS :	
	Barangay Boundary
	Major_Riverbed
	Roads



50 25 0 50 100 150 200 Meters

Spheroid : Clark 1866
Projection : Universal Transverse Mercator
Datum : Luzon Philippines



DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
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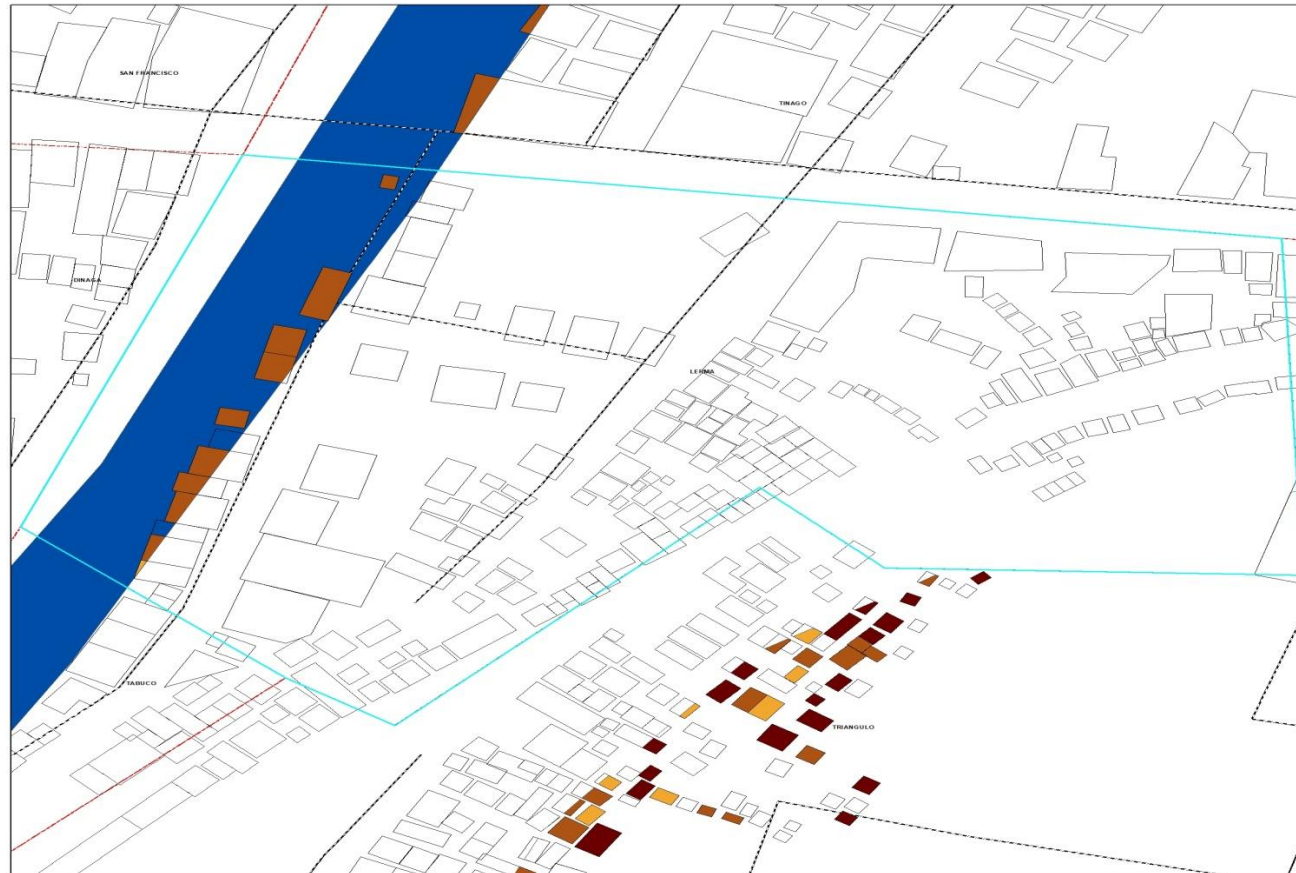
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Data Sources : Google Earth Satellite Images,
Mines and Geosciences Bureau RO5 Hazard Maps
DENR- Lands Management Services



PHYSICAL RISK MAP FOR HIGH FLOOD SUSCEPTIBILITY OF BGY. LERMA, NAGA CITY



LEGEND:

RISK RATING

0.000000	Absent
0.016562 - 0.028125	Low
0.029375 - 0.039063	Moderate
0.040625 - 0.062187	High
0.065312 - 0.096875	Very High

SYMBOLS:

Barangay Boundary	Major_Riverbed
Roads	



10 5 0 10 20 30 40 Meters

Spheroid: Clark 1866
Projection: Universal Transverse Mercator
Datum: Luzon Philippines



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Cartographic Processing: Mines and Geosciences Bureau - RO5
Data Sources: Google Earth Satellite Images,
Mines and Geosciences Bureau RO5 Hazard Maps
DENR- Lands Management Services



PHYSICAL RISK MAP FOR HIGH FLOOD SUSCEPTIBILITY OF BGY. IGUALDAD, NAGA CITY



LEGEND :

RISK RATING

0.000000	Absent
0.016562 - 0.028125	Low
0.029375 - 0.039063	Moderate
0.040625 - 0.062187	High
0.065312 - 0.096875	Very High

SYMBOLS :

Barangay Boundary	Major_Riverbed
Roads	



20 10 0 20 40 60 80 Meters

Spheroid : Clark 1866
Projection : Universal Transverse Mercator
Datum : Luzon Philippines



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Rawa, Legazpi City

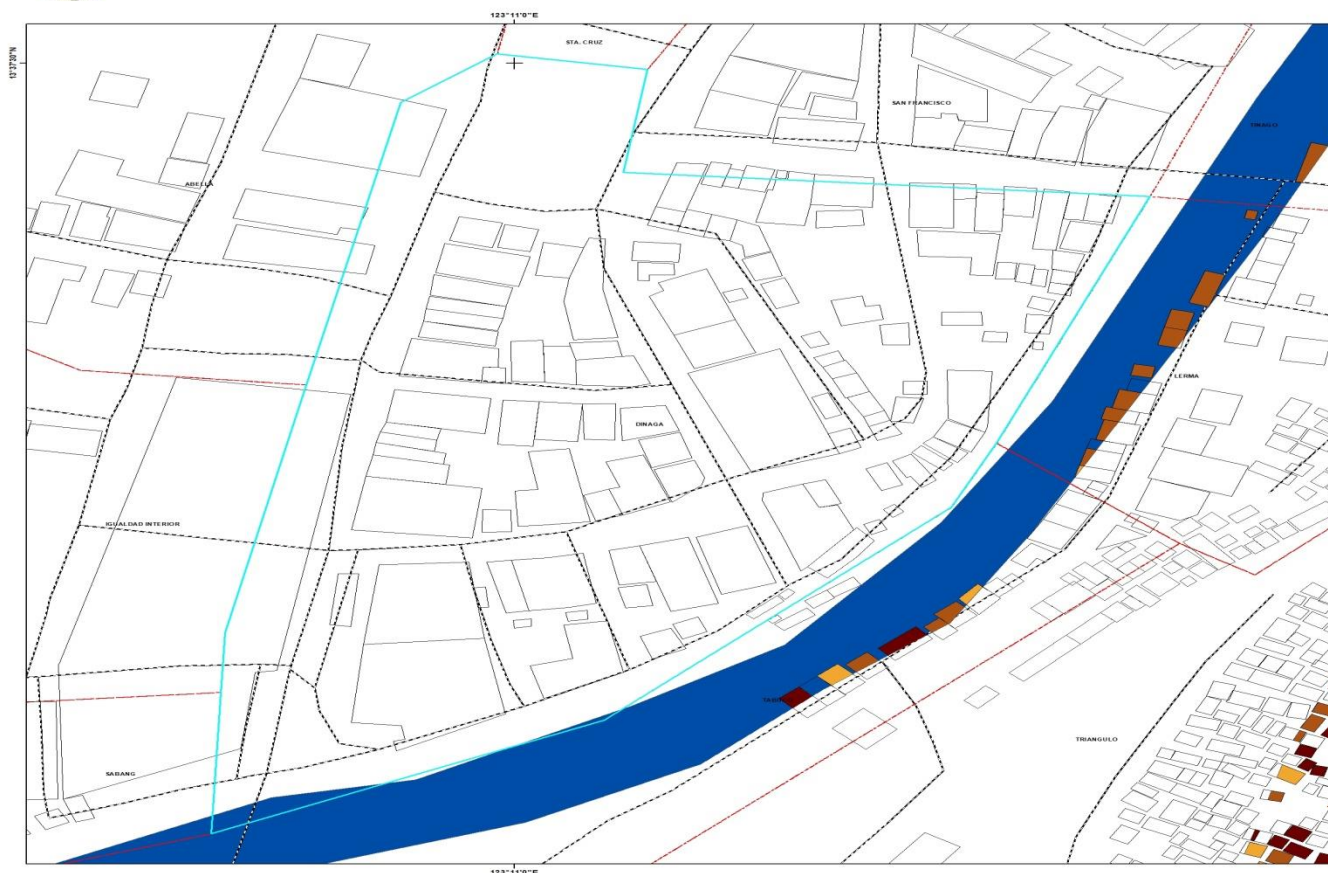
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Cartographic Processing : Mines and Geosciences Bureau - RO5
Data Sources : Google Earth Satellite Images,
Mines and Geosciences Bureau RO5 Hazard Maps
DENR Lands Management Services



PHYSICAL RISK MAP FOR HIGH FLOOD SUSCEPTIBILITY OF BGY. DINAGA, NAGA CITY



LEGEND :

RISK RATING

0.000000	Absent
0.016562 - 0.028125	Low
0.029375 - 0.039063	Moderate
0.040625 - 0.062187	High
0.065312 - 0.096875	Very High

SYMBOLS :

Barangay Boundary	Major_Riverbed
Roads	



10 5 0 10 20 30 40 Meters

Spheroid : Clark 1866
Datum : Universal Transverse Mercator
Luzon Philippines



DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
MINES AND GEOSCIENCES BUREAU - ROS
Rais, Legazpi City

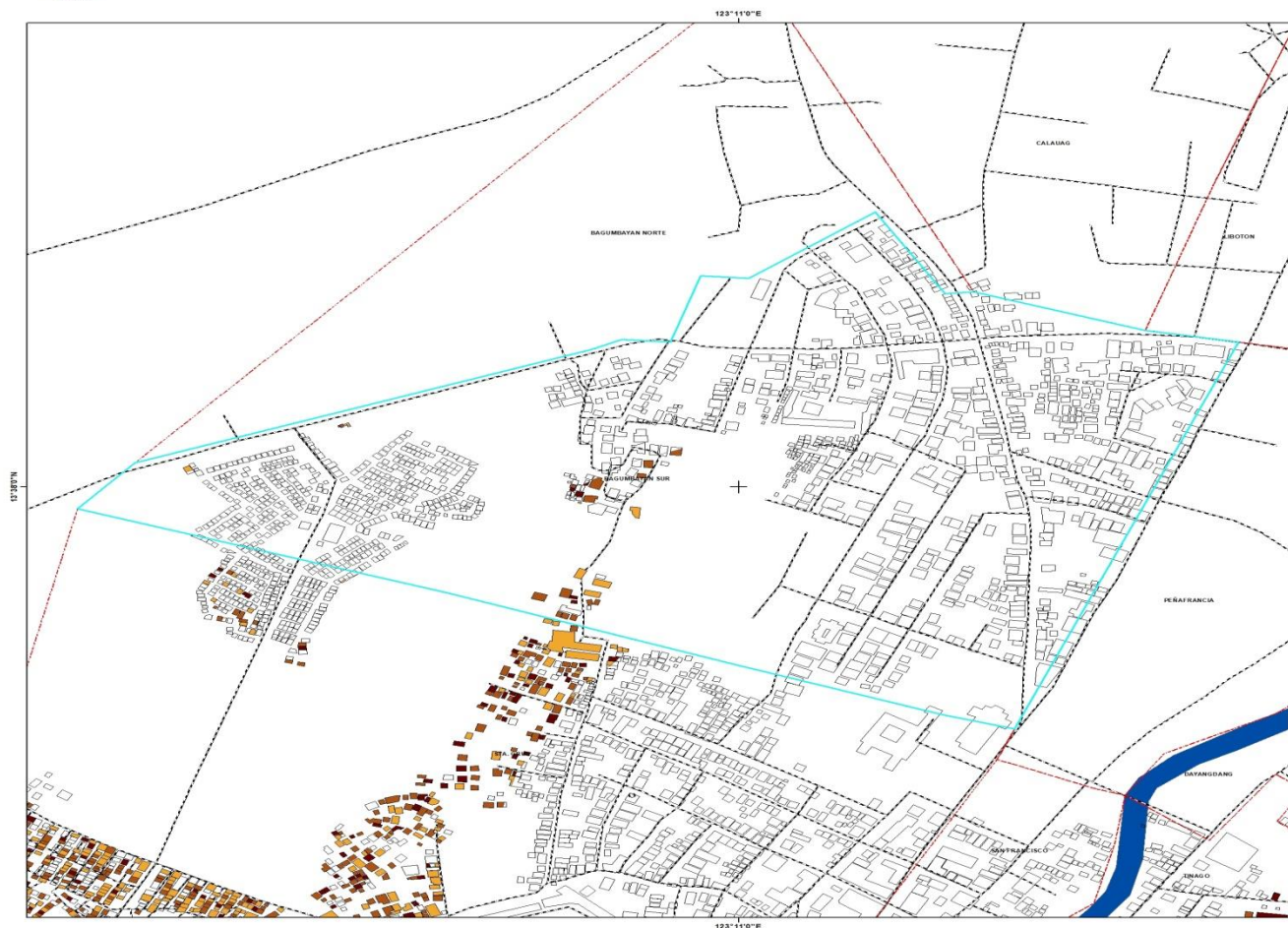
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Satellite Image Interpretation : Mines and Geosciences Bureau - ROS
GIS Processing : Mines and Geosciences Bureau - ROS
Cartographic Processing : Mines and Geosciences Bureau - ROS
Data Sources : Google Earth Satellite Images
Mines and Geosciences Bureau ROS Hazard Maps
DENR- Lands Management Services



PHYSICAL RISK MAP FOR HIGH FLOOD SUSCEPTIBILITY OF BGY. BAGUMBAYAN SUR, NAGA CITY



LEGEND :

RISK RATING	
0.000000	Absent
0.016562 - 0.028125	Low
0.029375 - 0.039063	Moderate
0.040625 - 0.062187	High
0.065312 - 0.096875	Very High

SYMBOLS :	
Barangay Boundary	Major_Riverbed
Roads	



50 25 0 50 100 150 200 Meters

Spheroid : Clark 1866
Projection : Universal Transverse Mercator
Datum : Luzon Philippines



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MINES AND GEOSCIENCES BUREAU - RO5
Rawis, Legazpi City

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Cartographic Processing : Mines and Geosciences Bureau - RO5
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Mines and Geosciences Bureau RO5 Hazard Maps
DENR- Lands Management Services



PHYSICAL RISK MAP FOR HIGH FLOOD SUSCEPTIBILITY OF BGY. ABELLA, NAGA CITY



LEGEND :

RISK RATING

0.000000	Absent
0.016562 - 0.028125	Low
0.029375 - 0.039063	Moderate
0.040625 - 0.062187	High
0.065312 - 0.096875	Very High

SYMBOLS :

Barangay Boundary	Major_Riverbed
Roads	



30 15 0 30 60 90 120 Meters

Spheroid : Universal Transverse Mercator
Datum : Luzon Philippines

Field Data Gathering : Mines and Geosciences Bureau - ROS
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Satellite Image Interpretation : Mines and Geosciences Bureau - ROS
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Raws, Legazpi City

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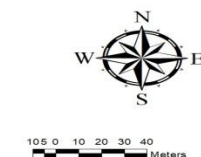
PHYSICAL RISK MAP FOR HIGH FLOOD SUSCEPTIBILITY OF BGY. SAN FRANCISCO, NAGA CITY



LEGEND :

RISK RATING	
0.000000	Absent
0.016562 - 0.028125	Low
0.029375 - 0.039063	Moderate
0.040625 - 0.062187	High
0.065312 - 0.096875	Very High

SYMBOLS :	
	Barangay Boundary
	Major_Riverbed
	Roads



Spheroid : Clark 1866
Projection : Universal Transverse Mercator
Datum : Luzon Philippines



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MINES AND GEOSCIENCES BUREAU - ROS
Rawis, Legazpi City

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Mines and Geosciences Bureau ROS Hazard Maps
DENR- Lands Management Services